

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

GLEANINGS IN BEE CULTURE

A JOURNAL
DEVOTED
TO BEES.
AND HONEY.
AND HOME
INTERESTS.

ILLUSTRATED
SEMI-MONTHLY
Published by THEA L. ROOT CO.
\$120 PER YEAR
MEDINA-OHIO.

Vol. XXIII.

APR. 1, 1895.

No. 7.

STRAY STRAWS FROM DR. C. C. MILLER.

ILLINOIS STATE FAIR offers bee-keepers \$255, in premiums of \$2 to \$20 each.

GUENTHER says Italian queens don't live as long as black ones.—*Bienen-Veter.*

THE FIRST PAGE of the *American Bee Journal* for March 7 is well edited. Five editors appear on it.

PROPOLIS, warmed and applied as a plaster to corns, is said to be a cure, in *Schweizerische Bienenzeitung*.

BEES FLEW a little. March 18, with the thermometer at 34°, and flew nicely at 41°; but the sun shone brightly, and the air was still.

IN ITALY an enemy of the wax-worm has been discovered—a fly that lays its egg in the worm, from which grows a larva $\frac{1}{2}$ inch long that kills the worm.

LE PROGRES APICOLE occupies a supplement of 15 pages telling about a four-days' bee-keepers' convention and exposition, with 184 prizes, commencing Aug. 31 at Mons, Belgium.

IN BUYING SEEDS of honey-plants, look out you don't get a start of bad weeds. A lot of sweet-clover seed that I bought gave me a start of three bad weeds I had not known before.

"How old may brood-combs be before changing them?" is a query in *A. B. J.* No one of the repliers thinks of changing them before 10 years, and the large majority never change on account of old age.

ACTINIDIA POLYPSAMA is mentioned as a new honey-plant in Germany—a twining plant, perfectly hardy, bearing long clusters of green fruit that is the size of gooseberries; sweet, and with the odor of pineapples.

A BEE'S EGG, according to some authorities, weighs .00013 of a gram; according to others, .00021 of a gram. Can Hasty or some one else tell us which is correct? [Hens' eggs vary in size; and, if my eyes have not deceived me,

queens' eggs. That being the case, both figures may be right.—ED.]

BLACK BEES seem to be preferred to Italians in England, but in Australia not. In the Question-box of the *Australian Bee Bulletin*, all the repliers strongly preferred Italians except one man, and he had had only one colony of Italians.

E. E. HASTY, in *Review*, and "Gleaner," in *American Bee Journal*, seem to spend a large part of their time nosing around in the pages of *GLEANINGS* after choice bits. All right, brethren, there's nothing wrong in your brousing where you find the best picking.

NO WONDER beeswax was in demand in the Middle Ages. I read in *Elsass-Lothringischer Bienen-Zuechter* of the immense number of wax candles burned in the churches. In one of them, 16 candles, each weighing 30 pounds, were kept burning day and night.

HASTY SAYS, in *Review*, that "putting footnotes of the *GLEANINGS* variety on the Straws" gives vivacity to the first page. So say I. They're more interesting reading to me than the Straws themselves. [Don't believe it; but I'll stick 'em on so as to have my say.—ED.]

"WE HAVE ALWAYS found bees build burr-combs when starters only are put in the upper story."—*Australian Bee Bulletin*. Never thought of it before; but it's reasonable to suppose burr-combs will be worse with small starters, because the bees are slower about going up.

GIANT BEES of India, or *Apis dorsata*, are now advertised, and I'm afraid there is something wrong. The advertiser says one of the drones put in a cage with a black or Italian queen will fertilize her at once, "and will fertilize as many as four queens before he stops"! [See Editorials.—ED.]

CHEMISTS SAY there is more "sweetening" in a dollar's worth of white than in a dollar's worth of brown sugar. I never disputed it, but I'd just like to know how it can be. Take a barrel of brown sugar and change it to white, and then it costs more, doesn't it? But have you added any sweetness to it?

"CLUMSY" or no clumsy, if you can make on rolls foundation like the Given, that the bees will like as well as that made with the press, I want to try it. I want foundation, not for its beauty, but for the beauty of the finished product. [We can make the article; and if the bees or their owners can tell it from the pressed wax, they are smart ones.—ED.]

The Bienen-Vater is an excellent German bee-journal, published at Vienna. You can subscribe for it at a dollar a year, or you can join the bee-keepers' society, paying 50 cents a year, and get the journal for nothing. Is it any wonder the society has a large membership? I tell you, those Germans can give us points on bee-keepers' societies.

A VENERABLE TRADITION has come down to us, that allowing bees to get started storing in the brood-nest seriously interferes with their storing in supers. I've bowed to that idol long enough, and now stand up to say I don't believe there's a word of truth in it. So there, now! [I am half inclined to think the doctor is right. If there is a supporter of that "Venerable Tradition," let him speak out.—ED.]

"A NICE JOKE" is what Mr. Cowan calls that Straw on p. 123 about British honey production. That Medina printer wouldn't think it any joke if I could get hold of him. Only I'm afraid the mistake was mine instead of his. You see, I gave 5250 lbs. as the possible production annually, when I meant tons. But Mr. Cowan thinks 10,000 tons would be nearer the mark. [Your treat, doctor.—ED.]

PROPOLIS, says Geo. W. Stephens, in *A. B. J.*, can be cleaned off the hands with soap and water alone. "Use plenty of soap and not much water; rub the hands together in the lather until the propolis is dissolved, then wash in the water. If any propolis yet remains, lather and wash again." [Grease the fingers with vaseline before working with the hives, and the propolis won't get on the fingers much if any.—ED.]

LA GRIPPE, says Dr. Peiro, in *A. B. J.*, can generally be shaken off if taken at first. "Absolute quiet in a warm bed, not a thing to eat for 24 hours, and only hot buttermilk to drink—all you want of it. After that time, toast, with the yolk of a soft-boiled egg three times a day is permissible. In a few days you will be quite able to resume your regular work and diet." [Dr. P. is about right. I have been testing that sort of advice, without the buttermilk, and it worked tiptop. We don't have buttermilk at our house.—ED.]

WHAT'S THE RIGHT ANSWER to R. C. Aikin's demand, p. 205, for 25 and 50 lb. cans for extracted honey instead of 60 lbs.? [Yes; but we can't make the large manufacturers change. The 60-lb. cans are made to hold a great variety of liquids, among which kerosene and lubricating oils are the most prominent. These

goods are sold by the gallon; and the cans hold, even measure, five gallons. A four-gallon can would be an odd-size; and as the honey interests are insignificant compared with the oil-trade, it is evident that the smaller size, holding 50 lbs., would cost as much as or more than the 60-lb. size. The square cans are cheap because the oil and syrup business makes them so, and we must take the regular size or pay more.—ED.]

[As this item, although by another writer, properly belongs to this department, I put it here at the end.—ED.]

Dr. Miller's criticism in March 15th GLEANINGS, in *Stray Straws*, is a little misleading when he compares the capacity of my hive with 9 frames with that of the Dovetailed hive with 8. My statement, that I favored the eight frame hive with 9 frames, applies as well to the eight-frame Dovetailed hive as to mine or any other of same width. Comparing them both as an eight-frame hive will be fair. And, again, if Dr. Miller will think just a moment he will be able to see (without getting off the fence) that adding an extra frame does not increase the capacity of the hive except in one respect. It gives more comb surface, but makes the combs thinner and only increases the capacity for brood, and actually diminishes the capacity of the hive in other respects. It diminishes the room for bees by just the space occupied by the extra comb. It diminishes the holding capacity for stores, as it adds an extra empty bee-space.

Mr. Hatch has made the same criticism on p. 225 of the same issue. My brood-frame has a cross-bar in the middle, which has been overlooked in the estimate of the comb-space in it. This was omitted in my article also.

H. R. BOARDMAN. □

East Townsend, O., Mar. 18.

[There! you have struck the key to the situation exactly. I thought I was right, but couldn't prove it quite as well as you have done.—ED.]



THE OLD-STRAW BEE-HIVE.

THE BEST FORM FOR A HIVE.

By H. R. Boardman.

This has always seemed to me to be a model of perfection not surpassed by any other hive in use to-day, if man's convenience is eliminated from the question. This strange, ancient hive, was hardly the result of accident, but was, I think, the result of careful study of the requirements of the bees by the pioneer bee-keeper, who took the dimensions of the swarm, as it were, for an economical covering for their protection. It is most perfectly adapted by its

shape to fit and protect a swarm of any size, large or small, and that, too, without the use of division-boards.

There are two important features to be secured in the construction of a bee-hive—the requirements of the bees and the convenience of the bee-keeper. It becomes important to decide how far we can afford to sacrifice the one to secure the other. A plain box or chamber, affording a cavity of sufficient size, is all that is required by the bees for a domicile. They will store as much honey in a log gum or a straw skep as in a hive of modern pattern. Even movable frames, that have become an indispensable feature of modern bee-keeping, are not appreciated by the bees. I have more than suspected that a plain box hive, of the old type, with the combs built securely to the sides and top all around, furnishes better conditions for wintering than the modern movable-frame hive.

In buying bees to transfer, I sometimes used to get an old neglected movable-frame hive. The frames would be irregularly spaced, and the combs built crosswise in every conceivable shape. I soon learned that they were not as valuable for my use as the plain box hives. I have never been able to see how these improvements furnished any of the requirements of the bees, or conveniences to the bee-keeper. There are a great many of these primitive bee-keepers all over the country, who will have from one to half a dozen colonies of bees, kept in this way. They buy improved hives and fixtures, but never expect to look into a hive after the bees are put in. It pains me to see my poor neighbors pay their money out for something that will do them no good, and I am inclined to recommend only box hives for box-hive bee-keepers.

THE BEST FORM FOR A HIVE.

I am aware that bees adjust themselves to a very wide range of circumstances, and even to serious inconvenience in the hives they sometimes occupy, without seeming to materially affect the results. I am sure that this furnishes no proof that there is not an economical form for a hive, that will give better results than any other form. I am aware that there is no such fixed form generally recognized among bee-keepers; but the size and shape of hives, in use varies through a very wide range, and are, I am well satisfied, many of them at least, the result of accident rather than the careful consideration of the requirements of the bees or the convenience of the bee-keeper. I have never been able to find any sensible reason why a hive in cubical form, with a square frame, was not the most perfect form. It furnishes, more nearly than any other, the natural requirements for a brood-chamber in permitting a round, compact brood-nest, and at the same time it furnishes the most economical form for the convenience of the bee-keeper.

Such a hive I have used for many years. Before the advent of the one-pound section I used a deep frame, but it was not just square, but deeper than wide. This gave good results; but I wished to use wide frames in the regular hive-body, for holding sections. Accordingly I made a slight change in the dimensions of the hive, which enable me to use my present square frame. The hive in most general use, and the most popular, perhaps, of all, is the long shallow hive of the old Langstroth pattern, with its improvements and modifications. I wish to compare these two forms of hives in some of their important features, and for convenience will call them the square hive and long hive.

SOME OF THE ADVANTAGES OF A SQUARE HIVE.

First, in the construction it is the most economical form, giving greater holding capacity than any other. Any one who can make figures can convince himself of this if he is interested enough to make a careful comparison of the square and long hive. It affords the same economy in construction, and it also gives less surface exposure to the cold of winter and the heat of summer, which is an item of more importance than might at first appear.

When I took up my pencil and made a careful computation of the comb capacity of the square and long frame, I was not a little surprised to discover that the square frame ($12\frac{3}{4} \times 12\frac{3}{4}$) actually contained the most comb space. The compact form of the square hive, giving the least possible surface exposure, and at the same time giving a brood-nest of the best possible form to resist cold, contributes largely to the best results in wintering. It has a reputation for good wintering qualities that few will think of questioning. The same features that make it favorable for wintering are also favorable for spring management. There is no place where these favorable conditions are more appreciated by the bee-keeper than in the spring.

There is not much in the claim that the long shallow frame has a decided advantage in manipulating; as the square hive has, if conveniently constructed, a side opening that makes the frames easy of access. There is, though, one advantage in a shallow frame—a prominent one—which I will not fail to recognize. It spaces more uniformly at the bottom of the frames. If fixed frames are used, of course this advantage all disappears.

There has been some discussion in the past over the height of the hive for the best convenience for yard work, and I regard it a matter of some importance among other features of the hive. The square hive furnishes the best height for convenient work possible, in sitting at a single hive or standing when tiered two stories.

Among the many who have discovered that the long hive is not a model of perfection is

John Craycraft, in GLEANINGS, p. 47. He gives some very sensible arguments, showing the advantages of his square hive over the long hive, although his is not a square frame. This, to my mind, eliminates the most objectionable feature. His experience with both styles of hives entitles his views to careful consideration. It has often occurred to me that I should want to use the frames as he arranged to use them, the short way of the hive, if I were using the long hives. Nor would this make a hive that I could be satisfied with by any means.

HOW THE SQUARE HIVE OPERATES IN WINTER.

At the beginning of cold weather the brood will all be hatched. This will leave the lower part of the combs empty, upon which the bees will be clustered. The stores will all be above the bees, in the most favorable position to be protected and preserved by the heat ascending from the cluster. As the winter advances, the consumption of stores enlarges the brood-nest of empty comb, and the cluster advance slowly upon the stores above them; and as long as any stores are left they are in an available position, and preserved in good condition for use. This is important. Stores of honey exposed for any considerable time to the cold become candied or grained, and are seriously impaired, and sometimes they become utterly worthless, and will be dug out of the comb, and carried out of the hives when warm weather comes. At the approach of spring, the cluster will have reached the top of the combs, where brood-rearing will begin in the warmest and most favorable part of the hive.

HOW THE LONG HIVE OPERATES IN WINTER.

Long before winter is over, the stores will be exhausted above the cluster to the top of the frames. If the cluster was located in the center of the hive, they will now have the stores divided into two lots, one in either end of the hive. One lot must now be abandoned while they advance upon the other. When these are consumed they are hopelessly cut off and separated from the stores in the other end by the empty comb between, and will perish unless a fortunate warm spell comes to their relief. But suppose the cluster is located at one end of the hive, at the beginning of winter. The stores will all or nearly all be at one side, and exposed to nearly as much cold as if no bees were in the hive at all. If the cold is severe and continuous throughout the winter, how could any thoughtful bee-keeper hope or expect the dormant cluster of bees to advance upon this frozen and candied mass of stores, and be able to appropriate them for food, with much chance of survival?

The large amount of surface exposure of the long hive makes it unfavorable for wintering without protection. This fact seems to have been early recognized by its advocates, and chaff packing as a winter protection came to the rescue. By this improvement the hive

that was already clumsy and awkward to handle became practically an immovable fixture in the bee-yard, and manipulation of such hives was not to be thought of.

I think the chaff hive has hardly been regarded with favor by the majority of large honey-producers, even by those who practice outdoor wintering. The manipulation of hives is too important a feature to be sacrificed for the advantages thus gained.

East Townsend, Ohio.

E. FRANCE'S QUADRUPLE LANGSTROTH HIVE.

HOW USED AND MADE BY HIMSELF.

By *E. France*.

First, we will say our lumber is dressed on both sides, and is $\frac{3}{8}$ inch thick. We want a pair of good match planes that will make a good tight job. For an eight-frame hive, match boards together for a bottom 30 inches wide by $42\frac{3}{4}$ inches long. We now want a division-board 30 inches long, $9\frac{3}{4}$ inches wide. Make the division-boards double thickness; nail two pieces of lumber together flatwise. Now rabbet out of the top edge of the division-board $\frac{1}{2}$ inch out of the thickness of the board, and $\frac{1}{2}$ inch down toward the bottom. Cut a rabbet on both sides of the division-board. Those rabbets are to hold up one end of the frames. Now put the division-board across the bottom-board, exactly in the center, and nail it fast, driving the nail through the bottom-board into the division-board.

Now make two short division-boards, double thickness, to go lengthwise of the bottom, dividing the hive into four equal parts. Nail them in, and we are ready for the sides, which should be wide enough to come even with the top of the division-boards and down to the bottom of the bottom-board ($10\frac{5}{8}$ inches wide); now two boards the same width to go across the ends; then we want some one-inch hoop-iron. Cut off a piece 30 inches long. Round off the two upper corners, then drive the iron into the division-board between the two thicknesses. Drive it in half an inch, leaving half an inch above the division-board. Now cut two pieces of hoop-iron to go into the short divisions, the same length as the division-boards. This iron is for a safeguard to keep the bees from passing from one colony to another over the divisions, in case the honey-board should be warped enough to let bees pass over.

We want quite a lot of $1\frac{1}{2}$ -inch strips, same thickness as the hive lumber. Place a $1\frac{1}{2}$ -inch strip around the top of the hive, $\frac{1}{2}$ inch down from the top. This is for the top chamber to rest on.

If you now look at the pictures you should get a good idea of the hive. The entrance is put at the corner furthest from the center of

the hive. The bees in winter cluster about the center of the hive, away from the entrance. The open hive shows the large entrance open for summer. The closed hive shows the large entrances, $1\frac{1}{2}$ in., closed by the button, down to the small hole, $\frac{1}{2}$ inch for winter. The closed hive also shows the ten-inch belt, as we have them in summer, when the third stories are on. The belt is in two parts, hooped together. When we open the hive, one-half of the cover is turned over on to the other half. We can then work two colonies, can take off one-half of the belt, and all the loose stories, if we wish. If we want to get into the lower story, or brood-nest, when we are done with

ting in the half-inch lining, take the square block (that you see upon the open hive), four inches square, $1\frac{1}{2}$ inches thick, and put it in between the outside of the hive and the half-inch lining. Make the hole match with the hole through the hive; nail through the half-inch lining into the block; pack chaff around it. For those bottom entrances, cut out half of the thickness of the bottom part of the cushion frame, opposite the holes in the side of the hive; also see that there is a passage through the half-inch lining. Those loose parts for second and third stories are made with a cushion in one end and one side. Make them the right size to fit one of the quarter-



FRANCE'S QUADRUPLE LANGSTROTH HIVE, CLOSED.*

the two colonies, we can put on the loose stories and the half belt, then shut down the cover; then if we want to work the other two colonies, just turn over the other half of the cover or chamber, and work the other two colonies. In winter we take off the third stories and the belts, and pack them away in the storehouse.

There is a two-inch lining inside the hive. All around the outside we use the $1\frac{1}{2}$ -inch strips to make a frame; nail the frame to the hive, then side up inside the hive with $\frac{1}{2}$ -inch lumber; fill the vacant space with chaff, well packed in. When lining up the end chaff-box, leave the half-inch lining low enough to form a rabbit to rest the end of the frames on, as shown in the cut. There must be a bee-passage through the chaff lining. Bore a hole through the outside of the hive; then when you are put-

divisions of the main hive. Rabbit out a frame-rest from the single-board end. The rabbit at the cushioned end is made by leaving the half-inch lining down $\frac{1}{8}$ of an inch. Make these upper stories $9\frac{1}{2}$ deep. I use a solid board (honey-board) over these hives, made to fit one division or quarter-section; cleat at the ends to keep them from warping. Honey-board is shown in the cut, up in the turned-back cover, with two holes through it, holes covered with wire screen. The holes are used for feeders. When I have to feed I set one of my pepper-box feeders over each hole.

Now for the roof, or top chamber. The cut shows how they are made. We want them

*The camera has distorted the true rectilinear lines a little in the hive and building in the background, for which allowance should be made.—ED.

deep enough to cover one set of upper stories, and leave room above the honey-boards for some straw packing for winter. The gable-end boards in my hives are $17\frac{1}{2}$ wide at the ridge, below the roof-boards, and $13\frac{1}{2}$ in. under the eaves. The roof is hinged together with three heavy 5-inch strap hinges. My frames are L. size, $17\frac{1}{8} \times 9\frac{1}{8}$.

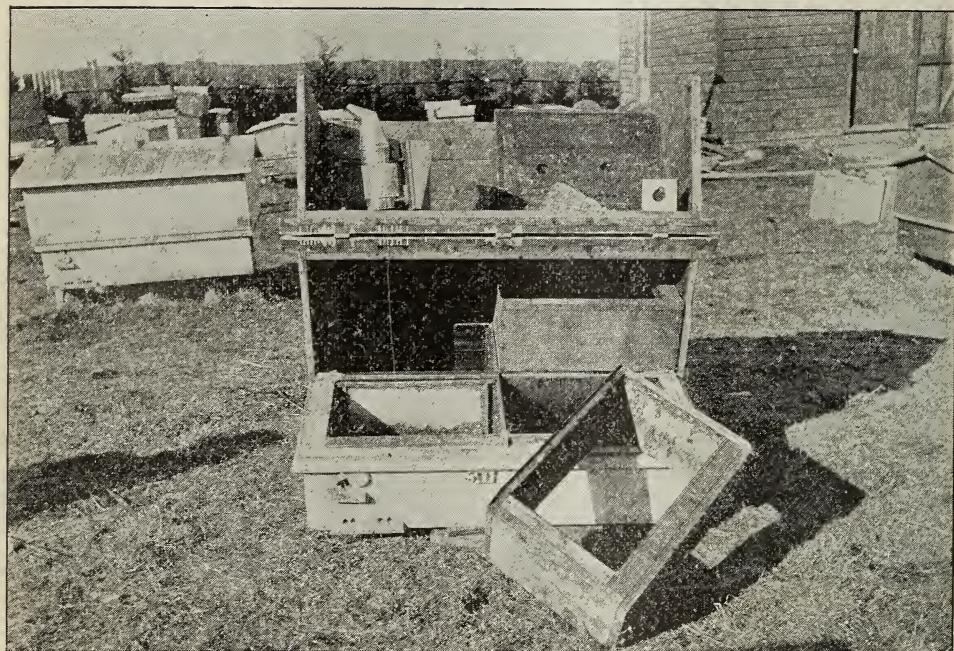
Now I believe the hive is made. You can see very nearly what kind of a stand I set it on—6 stakes driven into the ground, 2 feet four inches out of the ground; 3 boards, 4 inches wide, nailed on top of the stakes crosswise of the hive, all leveled with a spirit-level.

My bees are wintering finely in those hives this winter—140 colonies; not one yet dead. All had a good fly Feb. 27.

an hour or two, then smoke them a little and put in the upper set of frames fixed to suit you; or if the swarm is small, drive the bees down into the lower story, and put the honey-board on that.

I find this hive safe to winter bees in. Wind doesn't blow it over; farm stock don't push them over.

One thing I forgot to mention. That single story, shown with the open hive, shows a strip of galvanized iron nailed on the single side, raised up $\frac{1}{2}$ inch above the wood. That should go around the single end also. It is put on as a safeguard to prevent the bees from passing over from one colony to another. We cut a strip $1\frac{1}{2}$ inches wide, and long enough to go around one side and one end; nailed on the



FRANCE'S QUADRUPLE HIVE OPENED AND DISSECTED.

Some one says, "How in the world can you hive a swarm in that thing?" Easily. First, hive your swarm in a common box hive; then turn up one half of the roof over on to the other half. Put your frames into the lower story containing combs, or foundation or starters; set on the second story empty, no frames; have the honey-board ready to put on. Now get your box hive that has your swarm in it; bring it to your prepared quadruple hive; hold your box hive over the empty second story of the frame hive—box hive open end, of course. Now give the box hive a good chug down on the frame hive, and your bees are all in. Put on the honey-board quick, then let them alone for

honey-board; and other single stories fit right in there. The iron is not in the way at all.

Platteville, Wis.

[It may be a little difficult to understand the exact construction of the quadruple hive from the description; but if you will examine carefully the engravings I think it will be plain. It will be seen that these quadruple hives are large, and it would almost appear that they are clumsy, and would require clumsy and difficult manipulation. But friend France has got the handling of them down to a science. When I saw him work them he did nothing with them except what any frail woman could have done. Indeed, although he is over 70 years old he handles one yard entirely alone, taking large crops of honey. My purpose in saying this of the quadruple hive as used by Mr. France is

not to boom it nor to say that everybody should use it, but only to show that it is not such an awkward hive as it appears to be.—
ED.]

THE MADISON CONVENTION.

REPORT OF THE ELEVENTH ANNUAL CONVENTION OF THE WISCONSIN BEE-KEEPERS' ASSOCIATION, HELD AT MADISON, FEB. 6 AND 7, 1895.

By *H. Lathrop*.

It was with some misgivings that the officers of our association wended their way to the State Capitol to our regular annual meeting. For some years past the attendance had been getting smaller; and just at convention time this year there occurred one of the most severe storms of the winter, which would discourage some from coming. But the outcome was the reverse of what we feared. There was a good representation of the old standbys, and a number of bright young men who attended for the first time, and who will doubtless be among the future successful bee-keepers of our State. Much of the discussion related to questions that have been discussed many times in conventions before, and which might seem to have been worn out; but we must not forget that much of our work is for the benefit of the younger and inexperienced, to whom these questions are important.

Some of the members of the Southwestern Wisconsin Association were with us, of whom N. E. France, the president of that society, was elected to an office in ours. Messrs. Van Allen and Williams, two enterprising young men from Boscobel, Wis., had on exhibition a six-frame automatic honey-extractor that seemed to please every one who examined it. The following is taken from brief notes of the sessions:

The convention was called to order by President Frank Wilcox, at 1:30 P.M., in a room of the State-house. The minutes of the last meeting were read and approved.

N. E. France, of Platteville, stated that he had been sent as a special delegate of the Southwestern Wisconsin Association, for the purpose of working with us for the passage of a foul-brood bill, and asked the privilege of having the question inserted in the program. Pres. Wilcox replied that it is proper to introduce any question by simply writing it on a slip of paper and handing it to the chairman.

Mr. Tawle called for the report of the committee appointed last year to present the request of the association for lower freight rates on extracted honey. H. Lathrop reported that the request had been presented in due form to the chairman of the Western Classification Committee, Mr. Ripley, who had promised to bring it before the meeting of the committee in November; but a list of tariff changes made in

that meeting, which had since been sent out, did not contain any reference to extracted honey.

A letter from the commission house of S. T. Fish & Co., Chicago, was read, in which they answered several questions on the program, as follows:

Glass fronts to shipping-cases should not be dispensed with. We would not allow any one to ship us comb honey unless it had glass fronts, and we think that any one who wants to change the present style of case is making a mistake. The railroad companies request that the glass be covered; but in every instance where this has been done, honey has arrived in bad order, as the freight-handlers are not aware of the contents of the cases; while if the cases have glass fronts it is handled with care.

They also spoke very decidedly against dispensing with the use of separators. They do not think statistics of the bee-keeping industry is of any benefit. They preferred extracted honey in barrels, half-barrels, and kegs, or in 60-lb. cans; but they could not pay any more for it when in cans.

Mr. Van Allen said it was of great benefit to the retailer to have glass fronts in shipping-crates. H. Lathrop described how he protected the fronts of single-tier crates by tacking a short piece of lath across each end, and then tacking a piece the full length of the crate on to these short pieces. This protected the glass, and conformed with the requirements of the railroad companies, and did not hide the contents of the crate. When the honey arrived in store these strips can be pulled off.

In regard to the use of separators the convention was about evenly divided for and against their use. It was generally considered safest for all, except the expert and careful bee-keeper, to use them. The question of supers was taken up, and on this there was also a division. Some declared they had the best success with deep wide frames, and others used the T super, or topless wide frame. It is evident that we have not yet found a surplus arrangement of such marked superiority that it will supersede all others.

It was voted to make the presidents of other bee-keepers' associations, attending our convention, honorary members. This admitted N. E. France, president of the Southwestern Wisconsin Bee-keepers' Association. At this juncture Mr. France announced that the next convention of their association would be held the first week in October, at the house of E. France, in Platteville, to which he invited all.

The question of foul-brood legislation was taken up. Mr. France spoke of the great danger to bee-keepers from foul brood, and read the draft of a proposed foul-brood bill, which was similar to the Canada law. A committee was appointed to present the bill to the legislature, and work for its passage.

The question, "Does it pay to feed back in order to finish partly filled sections?" was decided by vote in the negative; though some maintained it could be done with profit if properly managed. It was the general opinion of the members, that extracted honey should be thoroughly ripened, and on the hive was the proper place to do it.

Mr. Wilcox stated that, in melting up granulated honey, the water should not be allowed to get hotter than 140°, lest it should injure the delicate flavor of the honey.

MORNING SESSION, FEB. 7.

The first item of business was a resolution offered by Mr. Winter, extending the sympathy of the association to the bereaved family of our deceased brother, S. I. Freeborn, of Richland Center. The resolution was adopted, and a copy ordered to be sent to the family. It was the sickness and death of Mr. Freeborn that prevented the attendance of our former president, C. A. Hatch; if he had been present we expected something from him on the important question of brood-chamber capacity. The question was not discussed to any extent, and nothing new presented.

A letter from an absent member, Gustav Gross, of Milford, was read, in which he called attention to the fact that sweet clover was included in the list of noxious weeds. He thought we ought to do something to have the law changed. It was decided that, as we were asking for legislation on foul brood, it would not be best to do any thing about it now. In some places it would not do well, and in a few cases only the weed commissioners had condemned it. Mr. Hoffman said it was not a very good honey - plant in his location. Mr. France thought we had better sow alsike clover.

On the question, "What can we do to improve our association?" one suggested that each member bring one new one; another suggested that we get the ladies to attend. This was warmly seconded. Take notice, sisters, we expect you next year. Several members reported that their wives had intended to come along, but were prevented by sickness among the children at home.

The following were elected officers for the ensuing year:

President, Frank Wilcox, of Mauston; Recording Sec., H. Lathrop, Browntown; Corresponding Sec. and Treas., N. E. France, Platteville.

A paper sent in by W. H. Putnam, of River Falls, entitled, "Honey; how it should be Prepared for Market," was considered very good, and we therefore give it here in full.

Browntown, Wis., Mar. 5.

HONEY; HOW IT SHOULD BE PREPARED FOR MARKET.

I shall confine my remarks to the production and preparation of comb honey for the market. I do not wish or expect to impart much information to my fellow-members of this association, as most of

them, at least, are experts in this line. The great body of bee-keepers, however, are not members of this or any other association, and they are the people who need to improve in the preparation of their honey for the market. My ideal of a package of comb honey, if a 12-pound case, should weigh 11 pounds net; if a 24-pound case, it should weigh 22 lbs. net. The comb of each section should be confined within the wood of the section, so that, if a straight edge were drawn across its face, resting on the edge of the rim, it would not touch the comb. If honey is produced in this shape, each individual section can be removed from the shipping-case without disturbing the others. Precaution should also be taken against leaking. These are qualifications which the market demands, and the successful business man *will* cater to the trade.

People in other lines do put up their goods to suit the purchaser, and we must do the same if we would make money. For instance, a few years ago it became fashionable to color butter. The conservative people argued against it, and there was no end of clamor and clamor against coloring butter. One of the most successful dairymen in my State (Wisconsin) favored the coloring of butter, because he said his customers demanded it; "and," he added, "if my customers send in an order for butter colored blue, the next shipment will be colored blue."

I make this digression to try to impress upon bee-keepers that the end of all our efforts is to make bee-keeping profitable; and if we would succeed we must cater to the trade. I had occasion recently to criticise a large producer of comb honey. That man raised nearly 4000 lbs. of comb honey in the poor year of 1894. I bought the whole amount at the price he asked, 10 cents a pound. I had difficulty in disposing of that honey because the crates were overweight, and the sections were not straight. You could not get one out without tearing the crate to pieces. When I had sold a customer one lot I could not sell him another. I criticised my friend, the producer, stating the reason why the trade wanted the scant sections, and got the following reply: "I do not care to put up honey for the dealer to beat the consumer on if I can help it." A long argument might be had on this point; but to cut it short, and state my view of the point, I will say, "Don't bite off your own nose to spite some one else;" dealers don't have to buy any man's honey unless it suits them, and it will suit them if they can make money on it. *Moral: Cater to the trade.*

Then I may briefly state my ideal crate of comb honey to have four necessary requisites:

1. It must be scant weight.
2. Combs must be straight.
3. They must not leak.
4. The 1-lb. is the standard.

How shall we obtain these requisites? If we would compete with Bro. Wilcox and Bro. France at the State fair next fall, we must lay the foundation now. If we would compete in the markets of the world we must make preparation at home long before the bees begin to swarm.

To accomplish these points we must adopt a section that, when filled full, will weigh about a pound. I consider the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ the proper size for general use with separators, and I do advise the use of separators by the general public. The members of this association do not need to use separators; they are skilled in their profession; they look to all the points; they keep their hives level; they keep their bees strong, so that, when they go into the surplus case, they fill it, and straight combs come naturally. For such bee-keepers I would advocate the $4\frac{1}{4} \times 4\frac{1}{4} \times$ 1 to the foot, and a full sheet of comb foundation. The average bee-keeper uses about 1 lb. of comb foundation for a bunch of 500 sections; his bees take care of themselves; some are strong, but most of them are weak; but a few bees go into the super at first; they cluster on some section; there is a vast unoccupied space all around them; honey is coming in slowly; they draw out the comb, and there is no limit to the size; it may bulge out on both sides, away past the edge of the section, and weigh $1\frac{1}{2}$ to 2 pounds. Later, honey comes in more freely; more bees are hatching all the time, and after a while the case is filled. Later, when the bees more perfectly fill the case, some very straight combs may be found in the same case with some very bad ones. Had this person used separators he would have had all the combs straight, because the few bees would have occupied one or two sections somewhere in the center of the surplus case; where

they had drawn out the combs within about $\frac{1}{2}$ of an inch of the separator, they would have capped it over and gone on to the next section. In this way the honey of no section can protrude beyond the edge of the section, and we have gained our first two points. The combs are scant weight, and they are straight, and we have almost gained our third point; for, when the combs are straight, and do not bulge, there will be very little leaking. We can guard against all leaking if we will cut a piece of newspaper an inch larger than the bottom of our shipping-crates, and place it in the bottom, allowing the edge to turn up all around about $\frac{1}{4}$ to $\frac{1}{2}$ inch.

One more point about preventing honey from leaking. When honey is first stored in the combs it is thin and watery. It needs to be ripened. The water in it needs to be evaporated. Honey may be ripened on the hive; but if it is white it is better to remove it from the hive, because, if left on the hive, the bees will run over it, and the yellow pollen will fall off from their legs, and soil the combs, and the honey has to go for second quality, and be sold at from one to two cents a pound less. If, however, the honey is of a dark color, or is produced in a region where no buckwheat or goldenrod exists, it may be ripened on the hive. The reason why honey should be removed from the hive as soon as completed, if raised in a region where buckwheat exists, is that buckwheat honey, if dark-colored, and if only a few cells of dark honey are stored around the edge, even of the section, it places the whole in a second grade. When honey is removed from the hive, never place it down cellar; that is the worst thing you could do, because there is always more or less moisture in a cellar. If you place your honey down cellar, I will tell you what happens. The honey takes on moisture; and as two particles can not occupy the same space at the same time, the cells are expanded, the capping bursts, the contents of the cells become more watery, part of it oozes out, a chemical process takes place, and, the first you know, that honey is all over the floor. You taste of it, and it is sour. I presume what I have just related takes place in nine-tenths of the grocery stores in the country. Grocers are in the habit of keeping their molasses, vegetables, and other produce in the cellar, and naturally the honey goes down there also, and it is damaged more or less according to the length of time it has been subjected to this process of taking on moisture. The customer pays 20 to 25 cents for a comb of that stuff called honey; they take it home; they taste potatoes, onions, codfish, and every thing usually kept in a grocery cellar. That fine flavor that bee-keepers talk about is gone, they don't like honey any way. Then people talk about adulterated honey, and no wonder. What shall we do? Ripen our honey above ground, in some dry, clean, warm room where the air is pure, so that what surplus moisture there is will evaporate. If the weather is damp and rainy, use a stove to dry the air, then our honey will thicken and preserve its flavor. When you sell a box of honey, tell the party not to put the honey in the ice-box nor down cellar, but, rather, put it on the pantry-shelf. If your customer is a grocer, give him a few pointers in a friendly way.

And now I come to the fourth point. The one-pound is the standard. The pocketbook argument should have its effect here. First, if you use an odd size you must expect to pay the supply-dealer from 50 cents to \$1.00 extra per 100, because it is more trouble to make odd sizes than regular sizes. Second, you must expect to get less for your honey. I will show you how much you would lose if you used a two-pound section. Suppose 2000 one-pound sections to cost at the factory \$5.00, you could not expect to get 1000 two-pound sections for less than \$4.00; and supposing 2000 lbs. of honey to sell at 14 cents a pound in one-pound sections, you could not expect it to sell for more than 13 cents in two-pound sections. In proof whereof I quote from the *Minneapolis Journal*, dated January 4, 1895.

Honey.—The market is slow, and prices are steady. Minnesota white clover, 14@15c; Wisconsin white clover, 14@15; dark honey, 10@12; extracted honey, 7c; 2-lb. combs, 12@14.

Then we have saved \$1.00 on the cost of the sections, and we have lost \$20.00 on the honey; \$19.00 would be a big Christmas present; but it would be just like finding it, to a bee-keeper who was in the habit of using a 2-lb. section.

I wish to touch briefly upon how to secure the greatest amount of white honey. We hear so many bee-keepers say every year that they did not get any white honey, or very little white honey. The

plan generally pursued by the ordinary bee-keeper is to let his bees alone in the spring until they begin to swarm; then he hives the new swarm, and, after about two weeks, he puts on his surplus-cases. A little knowledge of honey-producing plants, and their time of blossoming, would change all this; for, be it understood once for all, bees do not make honey; they simply gather it, and store it in the hive. In my locality the first surplus honey comes from white clover, in May and June, followed by a short spell of no honey at all, and then comes the basswood the last of June and first of July. Basswood bloom is all over from July 10th to the 15th, and then comes another famine. In order to get white honey in my locality, the bee-keeper must have his bees in condition to gather honey by the middle of May. He must put on his surplus-cases as soon as his bees begin to build brace-combs. It is my practice to tier up as fast as possible, and sometimes I have two or three surplus-cases nearly filled at swarming time. As soon as a new swarm issues I remove the old hive a little to one side, placing it at right angles to the old stand. I place the new hive exactly where the old one stood; place the partly filled section-cases on the new hive; and in less than ten minutes after swarming, the cases are again filled with workers; each worker carries a sackful of honey with her when the swarm issues, and thirty or forty thousand bees can hold a considerable amount of honey. I have weighed new swarms that weigh eighteen to twenty pounds without the hive—in fact, before they had been put into the hive at all. I have no doubt that two-thirds of this weight was the honey in the bees. With me, bees swarm during white honey-flow; and by following the method here described, no time is lost; they go right on, and more cases may be added. Meantime the old hive is moved nearer and nearer the new hive, day by day, until they stand side by side and very close. On the seventh day after swarming, in the middle of the day when the most workers are in the field, quietly and carefully pick up the old hive; carry it quietly, and set it down softly at the greatest distance possible in the same yard, from its former position. Notice the effect. Almost instantly you will see a swarm, as it were, collecting around the place where this hive had stood; they are the workers returning from the field; their home is gone; they are confused, and fly aimlessly about for a few seconds; they alight at the entrance of the new hive; their mother is the queen there reigning; the bees have the same scent; they are received, deposit their load, and go again to the field for more honey. Likewise the workers that were in the old hive which we moved so carefully do not know their home has a new location; they go forth, but return to the old location; they are received, and a rousing swarm is the result. No wonder the honey-sections fill up quickly, as there are so many workers. But what happens at the old hive in its new location? Nearly all its working force has been drained away to the new swarm. In a day or two the new queen hatches. She has few bees to hamper her actions; she makes a tour of the hive, and murders her sleeping sister-queens, yet unborn. She is monarch of all she surveys, and there is none her right to dispute. You will not be troubled with second swarms. No time has been lost since white honey began to flow, and now we have the whole working force concentrated on comparatively few sections. If there is any white honey, we get it. After a week or two we can put sections on the old hive, and all our bees will be in shape for dark or fall honey.

W. H. PUTNAM.

River Falls, Wis.

DRONE-TRAPS, SELF-HIVERS, AND NON-SWARMERS.

DRONE AND QUEEN TRAPS MOST PRACTICAL; "YOU PRESS THE BUTTON AND WE DO THE REST" HIVER WILL NEVER BE INVENTED.

By C. H. Dibbern.

A good deal has been said of late about how best to manage our apiaries in the bee-keeping of the future. It is generally admitted that,

for small apiaries of, say, less than 50 colonies, it will not pay to spend valuable time watching for swarms, especially in poor seasons; neither will it pay to let them go to the woods. In the large apiaries and out-yards the swarming season is usually a time of great anxiety and loss. Even if one has all his time free to look after the swarms, and every thing ready to do the hiving, it is usually hard hot work; and losses by doubling up and absconding are not always avoided.

Now, as the swarming season will soon be here again, the question is, no doubt, puzzling a good many—"How are we to control swarming?" Of all the many methods suggested of late years, the drone and queen trap method is, perhaps, the simplest and most satisfactory, so far as generally known. What is easier than putting the traps on the hives on the approach of the swarming season, and, when a swarm issues from one of them, simply putting an empty hive in its place, attaching the trap with the queen in it, and allowing the swarm to return when they please? There is no danger of the swarm absconding or doubling up with others as long as you trap all the queens. Should no one see the swarm it makes little difference, as the bee-keeper can easily determine any time, within two or three days, what hives have been swarming out, by finding a handful of bees with the queen in the trap, and fixing them up as desired. Surely this beats climbing trees, or running up and down the apiary with swarm-catchers, *a la B. Taylor*, all to pieces.

But why not carry this idea out further, and let the bees hive themselves? But how is this to be done? is the question I have studied for several years. Last year, and the one before, I described my devices that had proved partially successful; but the season developed serious defects. When the weather became hot, the strong colonies would crowd through the wood-zinc boards under the empty hives, and take possession and build comb there. This made it difficult to tell when a hive had actually swarmed, and it interfered too much with the work in the sections. Then, again, a hive would swarm; and when I supposed them nicely hived they would all go back through the board to their old home, except, perhaps, a handful or so, with the queen. To overcome these difficulties I substituted a solid board, except 4 inches of wire cloth at the rear end, to afford ventilation to the old hive, for the wood-zinc board. This worked all right; and when a swarm issued I would cut off the old entrance, and every bee would go into the new hive, where the queen was trapped, awaiting their return. When not present to cut off the direct entrance I would get only a part of the swarm; but I could always tell what hives had swarmed by looking in at the top, as the new hives are so cut off that the bees never take possession

without swarming. When I found these self-hived small swarms I had but to cut off the direct entrance to the old hive, to throw as many workers as wanted into the new one.

But now another difficulty appeared. When all the entrance was cut off, except through the bee-escape cones, from the old hive, the remaining bees would become alarmed, and commence in a day or two to destroy all their unsealed brood. This may be caused by their inability to get water, as bees never return when once through the escapes. I now leave an inch or so through the lower perforations, so that some bees can work from the old hive. At first I was a good deal puzzled to account for the small number of bees, and entire absence of brood in the old hive at the end of 10 or 12 days. I found invariably that, when cut off so that no bees could return, the unsealed brood would be destroyed. This, perhaps, explains the failure of such devices as the Langdon non-swearer. I found that about 8 to 10 days was long enough to leave the old hive to boom the new, after hiving the swarm. If the surplus cases are changed to the new hive at once, the work goes on with little interruption.

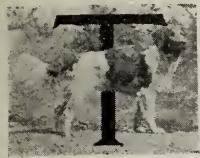
It has been urged against self-hivers, that the work and expense of preparing so many hives with foundation, in a large apiary, was too much work and bother. It is not necessary to prepare hives any faster than bees are ready to occupy them. As soon as I suspect there will be swarms soon, I put the queen-traps on all the strong colonies, and keep adding more as I have time. Now, as soon as a swarm issues from one of these hives I allow them to return once. This shows where an empty hive to receive the swarm is needed. I usually mark these hives, and fix them up during the day or evening, as I find time. When they again swarm out the next day or so, I simply place at the entrance a square stick, and fasten by a tack or two, to keep the bees from pushing it away, thus cutting off the old entrance, and compelling all the bees to go into the new hive. It seems to me it would be difficult to manage swarming more easily or more surely. Certainly it beats swarm-catchers, where one must be constantly on the watch, and generally on the jump, or cutting off limbs from valuable fruit-trees, and hanging them in holes dug in the ground "big as a barrel," to keep the swarms from doubling up.

I want to say, I do not claim that my device is entirely perfect, and I have no hivers for sale. Of course, in all such devices one must use a good deal of common sense. I do not believe that a "you press the bottom and we do the rest" hiver will ever be invented. The truth is, bees act very differently one season from another. I do know, however, that the idea is entirely practicable, and will soon come into general use.

Milan, Ill.

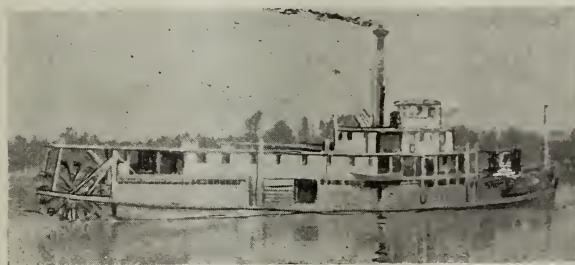
RAMBLE NO. 129.

AT NAPA; ON THE SACRAMENTO: JACK; GREASERS: WINERIES, ETC.

By *Rambler.*

HERE were a few partially civilized Americans living in Black Diamond, and these were allowed to come inside the "dead-line" around our camp. Mr.

Wilder had established such a line with our picket-ropes, to keep the horde of Dago kids from a too promiscuous mingling with our utensils. One of our American friends was pleased with our easy camp-chair, and, having apparently loaded up with beer, would come around and look at us as we worked at the picture business. It pleased him to tell us that he was electioneering for the office of justice of the peace, and had great hopes of election. He evidently thought that each jag of beer taken aboard was a harbinger of success. His heart was warmed toward us, and he gave us a sort of judicial opinion that our outfit was not complete without a dog; and as he had a surplus of that commodity on hand he would give us one. After seeing the embryo justice kick the dog with his heavy boot, and send him home limping, we decided to accept the gift. Jack was a splendid-looking specimen of the water spaniel, and his dam and granddam were traced back to Alaska. Jack adhered to the traditions of his forefathers, and was a good temperance dog, therein showing more sense than his master.



OFF FOR COLLINSVILLE.

We were to cross the river here. We had sought this place, for it was the cheapest one to cross. We were very busy until within an hour of boat time, and our spread-out camp had to be hustled into the wagon. Our would-be justice said we could not do it, and that we should have to wait two days for the next boat. But that man knew no more about hustling than a tadpole. He did not know of the conveniences of a collapsible camping-outfit, and we surprised him by driving to the wharf some minutes before the boat arrived.

The boat was one of the regular river craft

that ply between San Francisco and Sacramento, having a large undershot water-wheel in the rear. We just crossed the river to the town of Collinsville, not over five miles, and were on board less than an hour; and the ferriage, including the dog, was the modest sum of \$4.50. When we landed at Collinsville, and were hitching our ponies to the wagon, a fellow chipped another 25 cts. out of us for wharfage. We demurred greatly, and called it by its right name, a species of highway robbery. The explanation for this state of things is, that the rights and privileges of this waterway are controlled by the Southern Pacific Railroad. Their rule is to carry such an outfit as ours from San Francisco to Sacramento, over 100 miles, for \$4.50, or five miles for the same price, and we have to submit. "For ways that are dark, and tricks that are vain, the S. P. R. R. will beat the heathen Chinee."

We camped at Bird, four miles from the river; and the county we are now in bears the name of an Indian chief, Solano. A good portion of it rests upon Suisun Bay, and 100,000 acres of the county is tule swamp. These tule swamps are very fruitful all the year round, and the leading crop is mosquitoes. It is also a prolific breeding-place for frogs; and their hind quarters are temptingly displayed in the city markets. The next day, as we journeyed, a cloud of mosquitoes followed us. We were, fortunately, facing the coast breeze, and the cloud was left in the rear. Every conveyance we met, and that was going with the wind, had a fuzzy halo of the insects hovering over them.

Our observations in relation to bee culture were not rewarded with much success. Now and then a patch of wild sunflowers by the roadside would reveal various insects upon the flowers; but I saw only one honey-bee. Mr. Wilder saw another, showing that a colony was in the vicinity, bravely holding its own with the mosquitoes. Owing to the flat country, and its liability to inundation, the bee can not find lodgment in the ground; neither are there large

trees or rocky hills; so if the bees live here in the wild state it must be in the cornice of some residence; and even a house with such an appendage is somewhat rare after we leave the towns.

The lands above the river-bottom are devoted to the production of grain, and there is but scanty pasturage for bees. The tule lands are, however, in a fair way to be reclaimed. Great schemes are now on foot, so that, by a system of dykes and waterways, the rivers will be held in their natural beds, and the rich alluvial soil utilized for agricultural purposes. Then these low lands will become the natural home of al-

falfa; and wherever that is grown, we find the thriving bee-keeper; and I am not sure but some portions of Solano County already enjoy the benefits derived from the growth of alfalfa. The hoarse croak of the frog, and the high-keyed note of the mosquito, must give way to



"SANTA MARIA! DYNAMITO!"

the more industrious civilized hum of the honey-bee. It has been said, that the planting of eucalyptus-trees will banish mosquitos from a locality; but here we saw clouds of them while passing through avenues of gum-trees. Perhaps the avenues were not plentiful enough, or enough trees in the avenues. This being near the breeding-grounds of the insects it would probably require a tree to every square rod; and in case they were *Eucalyptus longifolia*, here would be another source of honey for the bees.

Whether it was mosquitos behind our horses, the untiring efforts of Jack to circle around our outfit, or our desire to get our mail, or a little of all three, we made a long drive that day; and in the early evening we dropped into the city of Napa. We were directed to a fine camping-place in the shade of some trees, and in that portion of the city known as Spanishtown. We were congratulating ourselves upon the shady situation, and had scarcely begun to erect our tent, when a woman with a very shady complexion, very large (I judge she weighed 300 lbs.), fat and greasy (you know these Spanish Mexicans are sometimes called greasers) appeared. Her first salutation was, "Why, what a poopy tent you have! Ble've I'll come and sleep in it to-night." Bro. Wilder dropped a tent-pin he was just going to drive, and I dropped a corner of the tent I was holding. Bro. Wilder recovered in a minute, and whacked away at the tent-pins again; and, not knowing what else to do, I took out my Water-

bury watch and commenced to wind, wind, wind. The shady fat woman had a look of curiosity at first; but wind, wind, wind; then a troubled expression of her swarthy features. Wind, wind, wind, and a step toward her, and she took alarm and shouted, "Santa Maria! dynamito!" and fled. No, she was too fat to flee; she got to her little cabin. She evidently thought I was fixing an infernal machine to throw at her.

We were soon after accosted by another Spanish woman, from another cabin. She was quite voluble of speech, and invited us to "beber vino" (drink wine) with her.

"No, señora," said I. "No necesitamos vino. Bebemos agua" (no, marm, we don't need wine; we drink water). We were thankful at last to be left in peaceful possession of our camp. We tied Jack in front of the tent, and, with my good Waterbury watch close at hand, we felt perfectly safe among the shady greasers.

We found in the morning, however, that these people were not all greasers. We could find no wood in the morning with which to prepare our breakfast. I entered one of the cabins to purchase a few sticks. The head of the house said I could have some; and after selecting four or five billets I asked him how much.



"DON'T YOU KNOW I AM A MISSOURIAN?"

"Oh! go along," said he. "We are Missourians; and don't yer know that, wherever you find a Missourian's home, you must walk right into the house and help yourself?"

I pocketed my dime I thought to give him, and paid him in thanks, which seemed to be satisfactory.

Napa is the great center of the wine industry of California. Vineyards and wineries are upon every hand. The viticultural associations and many good people, including some very prominent ladies, recommend the use of wine as a beverage, or as an appetizer at each meal. Owing to a delay in the arrival of our mail and express packages we were obliged to stop over here one day, and we had an opportunity to witness how delightfully the wine-bibbing practice worked.

Several of our Spanish neighbors, of both genders, and including our fat and our volatile acquaintances of the previous evening, gathered under the trees a few rods from us, around a demijohn of wine. It rapidly circled from person to person, until it was emptied; and after a short season it was sent to some convenient saloon and filled. It then circled again. Result, a young Spaniard slipped from his chair and sought a slumberous attitude on the ground. A blanket was spread, and he was rolled upon it by the fat woman. If he as much as opened an eye, the dames were on hand to offer him more wine. Others of the group staggered off to some more private place to have a lethargic sleep. The señoritas wound up their afternoon with what might be termed a jamboree of angry words. As the cool of the evening came, there came also two men and carried, rather than led, the limp form, that was still on the blanket, into one of the cabins. Thus the picture of the afternoon vanished.

Shall we take a little wine for the stomach's sake? Thus far on our journey Mr. Wilder and myself had not patronized the drink-shops, and this temperance lecture before us gave us an opportunity to renew our allegiance to cold water.

I have no sympathy with viticultural associations, for the scene among these poor Spaniards is daily reproduced in higher walks of life, and where the public eye can not behold the lethargic sleep or the domestic brawl. Therefore, still in the ranks of temperance reform will be found the Rambler.

JAKE SMITH'S LETTER.

FIVE-BANDED OR LONG-TONGUED BEES.

Mr. A. I. Gleenings—dear Sir:—Our Zed's always a fussin' at something. Last summer he got a lot of oyster-cans and put them on the different hives, with a little bit of feed in them. I didn't mind it, for it was a bad season and the bees wan't a gettin' nothin'; and I didn't care if he did feed em sunthin'. Zed's a good boy, if I do say it, and when he hain't into no mischief I let him have his own fun.

One day Jim Short he come over, and we was

a talkin' about how the corn was a dryin' up without fillin', when Jim see Zed a fussin' at the hives.

"What's Zed up to now?" says he. "He ain't a takin' off honey, is he?"

"Oh, no!" says I; "the bees ain't a makin' any honey now. It's a bad year for bees as well as every thing else. I guess Zed's a tryin' to get the bees to hatch out a crop of oysters."

I jist said it for fun, for I knowed he was a feedin' em. And I told him so.

Then he went over toward where Zed was, and says Jim to Zed, "You'll get your bees trained so they'll be no good."

"How's that?" says Zed.

"Why, they'll git used to lookin' to you for feed, and then when any honey does come in the blooms they won't go after it."

"I guess all I give 'em won't spoil 'em very bad," says Zed. "Come and see how much I give 'em."

"Jimminy!" says Jim. "Why, they hain't no feed there at all."

"Yes, there is too," says Zed. "You see, there's a false bottom there. And you see all those little holes in it for the bees to reach their tongues through. Well, there's just a little feed on the true bottom. And the true bottom's on a little slant, so you can tell just how far the bees' tongues reach. They'll suck up the feed just as long as they can; and when it's out of their reach, of course they'll have to stop."

"Oh! I see," says Jim; "you make 'em reach as long as they can, and then they'll stretch their tongues a little farther, and that way you'll grow a long-tongued set of bees."

"Say-ee!" says Zed, "why wouldn't that work?"

"I guess," says I, "you'd have to have a good many stretches to make much difference, and the whole hive would have to be at it all summer long, and may be a hundred summers for any thing I know."

"I guess that's so," says Zed, a fetchin' a long breath. "But that wasn't what I was after, though it ain't so far from it either. You see, bees' tongues ain't all of a length, not by a long shot. Now you see that feed comes up to the seventh hole. Now let's go to this next hive. Two, four, five—this comes only to the fifth hole. You see there's a good bit of difference in the tongues of these two colonies, and it's that way all over the yard. Some of 'em must have tongues a half longer than others. I guess I better get this cover on, for the robbers are gettin' around."

"Well, now," says I, "what good will it do if you take the measure of every bee? It won't make 'em any longer or shorter. If you could make 'em longer you might git 'em to work on red clover. But you can't do it."

"Don't be too sure of that," says Zed. "You can do what amounts to the same thing. Suppose you measure tongues in every hive. Then

breed from the long-tongued chaps, and weed out all the short ones. You know there's been red-clover queens one time and another wrote about. But I guess they all run out in a little while. My notion is, that those red-clover bees had extra long tongues; but the only way to tell it was to see the difference in their yield, and you couldn't keep that up soze to rely on it. Now, if you had a red-clover queen to breed from, or, what's the same thing, breed from your longest-tongued bees, and raise drones from the same, don't you see you could tell what you was a doin'? And you could keep that up."

"It wouldn't be no use where there's no red clover," says Jim.

"I believe it would," says Zed. "You know you'll have two hives just alike every way, fur as you can see, and one will store ever so much more than the other, and nobody can tell why. It's the difference in their tongues, along with the difference in flowers. Red-clover honey's too deep to reach. Now, it stands to reason that other flowers may be as deep or deeper than red clover; and even on white clover the bees with the shortest tongues might have hard work to reach all the honey in the blossom."

I thought to myself that wasn't sech a bad idea, but I didn't say it.

Zed went on, and, says he, "When they're tryin' to make out which is the best race, and whether five bands or three bands is best, let them settle it by measurin' of their tongues."

"Yes," says Jim, "first thing you know they'll have a fair, and bees from all over will be sent in to get the prize for the longest tongues. Then they'll quit advertisin' 5, 10, or 15 bands; but the advertisements will read, 'Queens for sale warranted to raise bees with tongues three-quarters of an inch long.'"

OPERATING A BEE-ESCAPE.

THE PORTER AND ITS PRINCIPLE RECONSIDERED

By C. W. Dayton.

I consider that the statement (in *Review* and *GLEANINGS*), that I was using Porter escapes both in experiment and actual practice, was a fair acknowledgment; but the final report upon them I shall not be prepared to make for a season or two yet. The past season I used four different kinds of escapes in removing 6000 lbs. of comb and extracted honey. Also several colonies were kept busy going through escapes from May to October, and it has become my opinion that the Porter, or, for that matter, the Stampede, is only a "stepping-stone" to an escape which is far better than either.

That escapes are an advantage is no question with me; for, during the past season, I kept an apiary within 54 feet of a much traveled highway. To open a hive and brush bees from

the combs of but one hive sent angry bees thickly after passing teams and people. Escapes, on the other hand, prevented a single molestation. To keep bees and take honey where I was located, without escapes, was positively out of the question. Where bees were once looked upon as a terror, there became a friendly disposition toward them.

When I began to experiment it was found that the bees of some colonies went out much more readily than others. The stampeding disposition was discovered, and some of the forms of escapes sent were far more favorable to stampeding bees than others. Prior to this I had used Porter escapes, but did not inquire into the philosophy of their operation any more than to put them on and remove the supers when empty. But when two escapes, which were exactly alike, were placed upon two colonies apparently alike, and the operation considerably different, it was queried where the differing existed—in the escape or in the disposition of the bees, or what?

The average time taken was perhaps twelve hours; but sometimes the time would be shortened down to three hours. I began to inquire into the reason for having the channel of the single-exit Porter of double-bee-space depth. Then after a bee gets down into the channel, and is about to proceed toward the springs, it must ascend an elevation in the floor. Under this elevation is an opening as if prepared for the deception of bees which were seeking a route to get back into the super. At the side of the elevated portion of the floor are two spaces as if for the passage of air. This elevation in the floor is a hindrance to stampeding bees. Then the round entrance to the channel is widely flanged downward, so as to interfere with stampeding bees passing forward. As a rule, the first bees to try the springs seldom go through until they return and inspect every other part of the escape or escape-board. I don't believe they want to go through the springs. But the depth of the rear part of the channel, and the flanged aperture, prevents their getting back into the super again, and they are finally forced to go through the springs, from thinking there is no other exit; thus when the bees get down into the channel they are in a trap. Observation teaches that, when the main force of bees get started they crowd through without attempting to turn about toward the super. Now, the number of bees which are liable to be trapped by this double depth of channel and flanged entrance to the same does not amount to 50 bees per super, which bees, if joining the throng, would go through in a few seconds. But these arrangements tend to defeat the purpose of the escape by retarding the main tumult. These first bees to test the springs are of a meddlesome disposition, and do not know that they are separated from the queen; and to construct imple-

ments to trap them is impractical. After a while a few of the clustered bees come down on the escape-board. They are not meddlesome, nor will they fight. These are the bees to set up a line of fanners, as soon as they discover the route to the brood-chamber, which rapidly augments in numbers.

Many times I have held the Porter escapes in my hands and wished they (Porters) had only done enough "ax-grinding" to explain the disposition of the bees toward every part of the implement. I would furnish the "stone" gladly. It was the failure in them to do this which caused me to do so much experimenting and philosophizing, and I produced the Stampede to illustrate the necessity of a wider exit; the going-toward-the-light, and other principles. I believe that the going-toward-the-light is one of the best principles in an escape, if we find out how to apply it. If we do not know how to apply it, it may be the worst. I do not think it can be employed in the Stampede or Porter as conveniently as in an escape that is surely to arrive within one or two years hence. I believe the perfect escape will possess a trap, but not a channel. When the bees progress a distance in a horizontal direction, turn an angle, and proceed onward to reach the brood-chamber, energy is wasted, the same as draft is wasted by an elbow in the pipe to the stove. I do not think escapes can be compared accurately by adjusting several in a board. It is the operation of the bees more than of the escapes.

I challenge any one to produce one line of theory from my articles which can not be demonstrated as actual fact, beyond a reasonable doubt.

Florence, Cal.

[Yes, I hope our inventors will not be too backward on this "ax-grinding" act. If they go too far I'll try to shut 'em off.—ED.]

THE PART THAT LOCALITY PLAYS IN DECIDING UPON THE BEST SIZE FOR THE BROOD-CHAMBER.

By J. E. Crane.

It is not often that I "take my pen in hand" to write to any of the bee-journals; so that, while I miss saying a good many things I should like to say, I am at least left to judge more disinterestedly in regard to what others write, because I have not committed myself to many of the views advanced.

As I look back over the years, there seems to be something of fashion in bee-keeping as in other things. Only a few years ago, revolving hives and frames were the fashion, though we hear but little of them now. Farther back, large brood-chambers were strongly advocated; and, later, smaller ones have been considered best; and now, again, like the sleeves of a fashionably dressed woman, the tendency is to enlargement. Meanwhile Dr. Miller sits serenely

on the fence, the most sensible man in the crowd.

I do not now remember any good reason for the adoption of a large brood-chamber, unless it has been that bees do better in them. And so small hives were adopted because they were thought to be more profitable than large ones. It has surprised me that so little *proof*, by actual experiment, has been offered. Surely here is a nut for the "Experiment Station" to crack. And yet I doubt whether, if it were conclusively proved that large hives were better than small ones in a given apiary, it would follow that they would be better in some other apiary five miles away. Here in my home apiary I use, mostly, hives with seven or eight Langstroth frames. Some years ago I brought in six or seven hives with large brood-chambers—ten or more combs. As the combs were crooked and irregular I let them remain for several years as they were unless it was to remove the surplus drone comb and substitute worker comb instead. And now I think I can say that I received twice the profit, on an average, from my colonies in small brood-chambers that I did from those in large brood-chambers.

More than this, within a few years a neighbor has put out an apiary near me. He worked for me two seasons, and knew very well how to care for bees before that; but he has kept his own stock in large brood-chambers, while I have kept mine in small. I told him recently that I thought he had not received one-half the profit to the hive that I had, and he was quite ready to agree with me.

Now, does not all this prove quite conclusively that a small brood-chamber is better than a large one? It certainly looks so. But, hold on a little. I have several out-apiaries. One of them, six miles away, I have for several years kept mostly on seven or eight Langstroth frames. Close by it my brother's wife has a small apiary in large brood-chambers, with ten or eleven Langstroth combs to the hive. She does not believe in feeding—says that, if bees can not get their own living, they may die. So she did not feed at all the past season, while I had to feed quite heavily both spring and fall, and her yard averaged more marketable surplus honey to the hive than mine, and I think twice the profit with one-half the care. Hurrah for the large brood-chamber!

Now, here is experiment and positive proof to my mind that both are best and that neither is best. But what makes the difference? What are the principles that underlie the subject that make a large or small brood-chamber more valuable in a given location than the other size? All were wintered alike out of doors, all were on the same size of frame; and, so far as I know, the bees were equally good workers.

I believe we have not far to look for an answer. In my home yard the bees have an al-

most continuous flow of honey from willows and maples, from flower-gardens, fruit-trees, and dandelions, from early April until June, and brood-rearing progresses with great rapidity. The brood-chamber being small, the brood can be kept warm with fewer bees, and more workers are sent to the fields; and, the faster the honey comes in, the faster the brood is spread, and strong colonies early in the season is the result.

How is it in the yard six miles away? The conditions are quite different. Very little early honey is to be had; and, while the small brood-chamber always contains ample honey for present needs (for we feed if they do not), the bees will not spread their brood as fast as where there are from 15 to 20 lbs. or more of old honey at the sides of their hives.

Again, I have found hives with a large brood-chamber and "lots" of honey, rearing brood later in the season than hives with less room and less honey, and so go through the winter stronger.

Again, it is necessary to feed colonies in a small brood-chamber much more in autumn to winter them than is necessary to feed to those in a large brood-chamber; and it now seems very doubtful whether sugar syrup is as good to stimulate brood-rearing as is pure honey.

So it comes to pass that, where but little honey is gathered in early spring, the large brood-chamber has the advantage of a small one. But suppose we feed the colony in the small hive very heavily in autumn, will not that help the matter? My experience has been that, where a small brood-chamber is crowded with bees and honey, the bees will rear a large amount of brood in winter, and the vitality of the bees and their stores both be exhausted.

I formerly reasoned in this way: What is the use of letting a colony of bees occupy eleven frames when eight are all they really need for brood and a moderate supply of honey? Why not have the eighteen pounds of honey that it would take to fill those extra combs, stored in boxes which would sell for \$2.00 above the cost of sections, etc., and then in the fall feed 15 lbs. of sugar, which would cost less than a dollar, and thus make a dollar clear to each hive, which, on 500 hives, would be no small sum? The logic seems to be all right; but in practice I have only one yard where it is an entire success, and that is where the bees get an abundance of early honey, and here a small brood-chamber is much more profitable than a large one. In our other yard it would seem to be about an even thing, and in all my other yards the large brood-chamber has decidedly the advantage, unless in exceptional seasons when there happens to be an unusual yield of early honey.

Middlebury, Vt., Jan. 19.

—*Bee-keepers' Review* for February.



INCREASING COLONIES.

Question.—Owing to the past cold winter, bees are coming out very poorly this spring, some having lost from one-third to two-thirds of their colonies, and others nearly all they had last fall. Now, what we wish to know is, how to build up the colonies we have left, so that the combs can be occupied, and our apiaries be prosperous again. We elect you as our general; so, go ahead that we may follow.

Answer.—I am very sorry to hear of the many losses, from reports which are coming in, but am glad to see the cheerful spirit manifested in going about building up again, and will gladly do all I can to help. In this building-up process, all want one or more boxes similar to a honey-case, only having wire-cloth sides, and a hole in the top which will admit a funnel, such as is used in putting up bees by the pound, this hole having something like a door to easily close it with; and one of the wire-cloth sides should be tacked to small wooden strips, and thus made easily removable. All how to make these "nuclei boxes" has been given by myself in back volumes of *GLEANINGS*. As early in the spring as you can do so without loss by cold spells, begin to stimulate the very strongest colonies you have, by spreading the brood and feeding (being sure that you do not go too fast), so that these colonies may swarm early, thus giving you queen-cells, or build queen-cells for you by the plan given in my book, so that you can have plenty of queen-cells to use as you wish them, if you prefer to raise your queens to purchasing them. Having the queen-cells nearly mature, or having queens on hand by purchase or otherwise, go to the colonies which can spare bees without damaging their building-up as fast as you desire, and take out two frames having to the amount of about one-half pound of bees on them, being sure the old queen is not on these combs. Set them down on the outside of the hive, and tap gently on them so as to cause the bees to fill themselves with honey; and as soon as they are filled shake them down through the funnel into the box, removing the funnel and closing the hole. While the bees are filling themselves with honey, you can go to other colonies and take out frames of bees from them, and thus keep things moving right along, instead of waiting as you will have to if there is only one colony in the apiary.

Having the bees in the box, return the combs of brood to their old place in the hive, marking the one having the most hatching brood, so you can get it in a moment when wanted. Now set the boxes of bees in a cool dark place,

and leave them till near night—just time enough so you can finish your work before it becomes so dark you can not see. At the right time, go to the hive from which you took the bees, and get the marked comb, shaking the bees which are on it in front of the entrance, and put a frame of comb from which the bees have died, in its place. Now take your comb of brood and a frame of honey, left from your dead colonies, and place them in a hive where you wish a colony to stand, putting in a division-board so as to make a small hive for the two combs. Go to your hive having queen-cells, and take one of them, fitting it into the comb having the brood, at the upper edge of said brood. Now close the entrance to the hive; get the box of bees, and put it with the funnel-hole next the combs; open the door over this hole; and if the box is within three-eighths of an inch of the brood, the bees will immediately run out of the box on the combs. As soon as they begin to run out, close the hive, and the work is done till next morning, when you will take out the box, adjust the division-board, and open the entrance. As soon as the young queen from the cell given gets to laying, you are ready to insert your combs from the dead colonies till the hive is filled, giving the combs as fast as the bees can occupy them. In the above, I have given the mode of making one little colony: and you are to make as many and as often as you have colonies that can spare bees and queen-cells to give the bees, using about half a pound of bees for each colony made during June, one pound during July, and two pounds during August. Where we have plenty of combs to use, there should be no trouble in making ten colonies from one old one in the spring, as I have repeatedly proven. If you prefer to purchase queens, instead of raising them, then you will proceed the same as above given; but instead of doing any thing about putting the bees in the hive at night, you will place the queen in a provisioned cage, go to your box of bees, and, by setting the box down suddenly, drop them all to the bottom, when the caged queen is to be hung in so the top of the cage touches the top of the box, and the bees left till the next morning, when the hive is to be fixed as before, less the queen-cell; and, instead of opening the funnel-hole for the bees to run out of it, the movable side is taken off, and the bees hived like a swarm, letting the queen out of the cage so she can go in with them. Or if you do not prefer this plan at all, then let the colonies swarm as fast as they will; and, six days after any swarm issued, divide the old colony into nuclei, using two combs with bees, brood, and a queen-cell to start a separate colony, and build up these nuclei with the combs not occupied with bees. In this way you can make six good colonies from one in the spring, and often secure quite a surplus from the new swarm.

DIVIDING COLONIES.

Question.—I wish to divide each of my colonies just once; thereby securing the increase I desire. How would you proceed to do this if you had virgin or laying queens to give the queenless half?

Answer.—Having the queens on hand, as it is supposed in the above question, go to any colony preparing to swarm, or one that has its hive full of bees and brood, and move it to one side of the old location, so as to put a new hive in its place. If a hive is not full of brood and bees, do not touch it; for it is useless to try to increase bees till such is the case. Now look over the combs until you find the one having the queen on it, when you will place said comb in the new hive. Next give them a frame having some honey in it, and then fill out the hive with empty combs or foundation, when about two-thirds of the bees in the old hive are to be shaken in front of the new hive, and allowed to run in. Now arrange the frames back in the old hive, putting a division-board in place of the frames taken out, when the old hive is to be carried to a new location where it is wished that it should remain. After the bees thus removed have become reconciled to their queenless condition, or in from 24 to 36 hours, give them a virgin or laying queen in a cage, in the mouth of which is enough Good candy so that it will take them from three to four hours to eat it out, thus liberating the queen. When the queen gets to laying, take out the division-board and fill out the hive with combs or foundation. In this way we secure a new swarm, control all after-swarming, and introduce a young queen, all to our liking and with but little trouble.



HONEY-CAKE RECIPE.

As I know a good recipe to make honey-cake, I will publish it for the benefit of others: Five eggs; 2 cups honey; 1 cup sugar; cinnamon; one teaspoonful soda. Beat the eggs with sugar; heat the honey lightly; stir in soda with one spoonful of warm water, then pour it all together. Stir as much flour to it, to roll out for cakes. When eggs are scarce I take two eggs or none, but a cup of lard, two cups honey, one of sugar, etc. I prefer this recipe. I make cakes, or pour it in a pan. It never fails to be good in either shape. Just try it. You and the children will be satisfied. We eat honey three times a day, the whole year round. Guajilla and catclaw honey have a fine taste. The more you eat, the better you like it.

MRS. ANNIE SCHUDDEMAGEN.
Sabinal, Texas.

NO SELF-SPACING DEVICE WANTED.

The 100 thick-top frames I ordered of you, and received Aug. 30, 1894, I think are the best made; in fact, I would not give them for any other. I like a plain frame. I do not like the Hoffman, or a frame with a tack driven in the edge to space them. I always fix the space on the hive, and not make the frames self-spacing; by doing this there is no need of having any other than a plain thick-top frame.

S. F. SAMPSON.

Ronceverte, W. Va., Feb. 11.

[All the manufacturers, I believe, allow their customers the option of self-spacing or non-spacing frames, for it is impossible to please every one with one style of frame.—ED.]

ROBBERS, AND CRACKS AND CREVICES.

I want to say something to you, where you are giving advice about robbing. You say, on p. 251, in the A B C, "Close all cracks and crevices." Now, I want to ask right here, what will start robbing quicker than to have such cracks and crevices in a hive? I want to say again, that if bee-keepers can't make or furnish hives for their bees, that have not such cracks in, they ought not to keep bees at all.

Big Rapids, Mich.

A. A. JOLES.

[The item to which you refer was written before the advent of the present modern factory-made hives, with their nice-fitting joints, and referred more particularly to the bee-keeper who made them himself. I agree with you, that there should be no cracks or crevices in a well-regulated apiary; for surely in this case prevention is better than cure.—ED.]

FIVE-BANDED STOCK; DIFFICULTY OF BREEDING THEM TRUE TO MARKINGS.

I ordered, about three years ago, a five-banded queen and two untested queens from a pure five-banded mother. The queens reared from the five-banded queen, in every instance so far as I know, produced queens that, in every respect, resembled the mother—finely marked, and, in the majority of instances, the daughters produced a full three-banded stock, while the other two untested queens, from the five-banded mother, or claimed to be, produced as fine, distinct, three-banded bees as I ever saw; but neither of them was fit to rear queens from. The daughters from them were a motley set, and, in the majority of instances, would produce hybrids, from black all the way to four bands. Some of the daughters from these queens would be black, while others would be yellow to the tip. I keep no black bees in my apiary, and there are but very few in the vicinity—none less than two and three miles. That was my first experience with these bees.

I made a further experiment, however, and found about the same. I ordered, in August, 1892, three untested queens from a pure five-banded mother. This, as in the other instance, I believe to have been from a perfectly reliable breeder. They were all safely introduced, and proved to produce strictly three-banded prog-

eny, but many running as high as four bands—none less than three. I bred from these queens, and found one to reproduce the markings of the mother; but the other two did not reproduce their markings in their daughters. Some of their daughters were not more fit to breed from than a hybrid mother; and I will state right here that no queen that will not reproduce herself in her daughters is fit to breed from. So I came to the conclusion that the first cross on these queens, even if by a black drone, the progeny would be a respectable three-banded bee; but to breed further would be a cross hybrid of the most vindictive nature. My experience proves to me, at least, that all bright queens will not do as breeders; for, while black blood may not show on the first cross, it will crop out in the continuation of breeding, if there ever was the least particle in the mother.

Coronaca, S. C., Feb. 13. J. D. FOOSHE.

HOW TO PROTECT AN APIARY FROM THIEVES; A SILENT NIGHT-WATCH THAT BOARDS ITSELF AND WORKS FOR NOTHING.

I have been troubled with thieves in my apiary this season robbing one colony of fine Italians of all the honey, with frames, right after the fall flow, thus destroying the colony entirely. Now, what I should like to know is this: Can I procure some powder cartridges, similar to the 5 or 10c. caution firecracker, sold for 4th of July celebration for the small boy, that will explode by pulling it apart, or, in other words, by friction, instead of a spark of fire? My idea is, to have one of these fitted to a hive using an outer case, and so adjusted that, when the cover or top is removed, it will explode the cartridge, causing a *loud* report, thus not only frightening the thief, but also giving the alarm to the apiarist. I intend to fix up something that will do the business, even with shells used in a shot-gun, 3½ drams of powder, and heavy wads; but I think cartridges designed for this special purpose, making a loud report, would be much better if they could be procured, which could be exploded by friction of the parts.

JOHN K. GOODRICH.

Waterbury, Conn., Nov. 25.

[It would be rather expensive, I think, to get up a special cartridge that could be attached to hives; and even then, if it worked as planned, it would scare away the thief instead of aiding in his capture. A far better and cheaper arrangement, and one that we once used around a poultry-yard to keep away thieves, is a simple electric bell, small battery, and a spool of linen thread. We simply stretched the thread around where the chickens were housed in small coops. It was black, and was passed through small screw eyes attached to trees. Of course, in the night time this would be invisible, especially if only about two feet from the ground. This thread should run clear around the apiary or poultry-yard. One end should be made fast, and the other tied to a wooden plug slipped between two brass clips, representing the poles of the battery. The battery wire and bell may reach to the house and into the bedroom. The

minute an intruder runs against the linen thread it will draw the wooden plug out and allow the spring clips to come together and complete the circuit of the battery, when the bell will ring in the bedroom and give the alarm, unknown to the thief. In our own case, fortunately or unfortunately, the thief did not come any more. If he had he would have been surprised. Now, this plan will protect 100 colonies at a cost not to exceed \$1.50 for material, and perhaps three or four hours' time in putting up.—ED.]

I do know, that, at first glance, any person at all familiar with the Heddon hive, would say at once, "Why, there is a Heddon hive." A closer examination reveals the fact that the thumb-screws are missing; and the case, instead of having eight frames, contains ten, and there is a sheet metal lining in the ends which also serves for supporting the frames, which are a duplicate of the Heddon. In making his frame close fitting together, and also to the case, the combination is clearly an infringement upon the Heddon claim.

The sheet-metal lining and rest, or frame-support, used by Mr. Danzenbaker, we consider very objectionable, expensive, and a failing effort to overcome supposed weaknesses that do not exist in our hive.

That sheet metal will not hold the frame tightly together, nor tightly to the case, for shaking and inverting; and if it would, it would be an infringement upon that special function of my invention, in the use of close-fitting frames, at the same time closely fitting the ends of the case. Whether Mr. Danzenbaker's features are better or worse, they can not be made, used, or sold, without laying all parties liable for infringement. My circular quotes patent laws, giving all the reasons why. The only damage Mr. Danzenbaker's hive can do is to lead bee-keepers into infringements, and away from better devices.

Mr. Martin says that a brood-chamber, made in divisible parts, and used as specified in our patent, is well adapted to California, and we are sure he is correct; for it is equally adapted to any spot on earth. While it was constructed principally for safety and time-saving in manipulating the apiary, it has been repeatedly demonstrated, since we brought out the hive, that a divisible or multiple brood-chamber winters bees more safely, and that they breed up faster in the shallow tiers of frame, than in any other style of hive. Hundreds have so testified; but, as stated before, to fully carry out safety and economy in manipulation, the frames must be fixed, and our manner of adjusting them tightly to each other at their ends, by the use of set-screws, and sufficiently close to the ends of the case that they are readily movable, yet the bees can not go behind them, is the only one we believe to be possible, so long as bees keep their present instincts. The set-screws are the only device which will securely hold the frames, for the needed manipulations in carrying out to completion the new system of management. Mr. Martin is acquainted with the state of the art, consequently he knows what is my property, and in his article makes that knowledge known to our readers. It must be his inquiry relates to the question as to whether there may not be a flaw in the *title* upon which I depend for the protection of my property. I am quite certain there is not, Bro. Martin; but if there were, do you understand that bee-keepers would rob me of what they know to be the results of my labor, provided the sheriff was absent? Laws are not virtues, but necessary evils; necessary to protect virtue and industry from crime and idleness. Law doesn't make right and wrong, *per se*. You know of what my invention consists, and you know it is my property, whether I had any patent-deed to it or not. But I have, as you know; and allow me to add that it is a good strong one, for, as the great authority, Walker, states, "The state of the art to which an invention belongs, at the time that invention was made, must be considered in construing any claim for that invention."



THE HEDDON DIVISIBLE-BROOD-CHAMBER HIVE;
THE DANZENBAKER HIVE, AND THE
QUESTION OF INFRINGEMENT.

When Mr. Heddon saw the article by Mr. Danzenbaker, which we published on page 221, he requested the privilege of replying to the same, saying his reply would be fair, courteous, and logical. As Rambler and one or two others had expressed themselves privately as of the opinion that the D. hive was a direct infringement on the Heddon patent, if any thing was, it seemed no more than fair to Mr. Heddon that the request be granted. It is important, I think, that the question of infringement, if any, and just what Mr. Heddon's patent does cover, be discussed fairly and candidly—more so than for the parties to resort to the process of law. The reply is as follows:

THE DANZENBAKER (?) HIVE.

Bro. Root:—I have just read Mr. Danzenbaker's article and your editorial comments regarding the same. On this, above all other subjects, do bee-keepers need information. I am very glad to note your sincere and intelligent views regarding our national laws giving adequate titles to the earners of property. First, I will say that I am surprised at your statement that you have not received the *Quarterly* edition of my paper, devoted to bee culture. It was mailed you promptly, over six weeks ago; but we know mistakes will occur in our offices and on our railroads. But now allow me space to make clear to your readers the relation between Mr. Danzenbaker and myself.

Bro. John H. Martin (Rambler), of California, has sent a communication to me which will appear in my April issue. In that communication occurs the following:

Recently in my travels in this State I have found a great variety in the size of brood-frames, and the tendency seems to be toward the shallow frame. Mr. Brodbeck, of Los Angeles, reduces the depth of the Hoffman an inch or more. Mr. Flory, in Central California, uses a similar frame. These straws show the tendency of the times; and the shallower the hive used, the more pronounced becomes the liability of infringement. Mr. Heddon says that, when straws become sawlogs, there is some meaning to them. Here comes the sawlog. When in Los Angeles a few days since, attending our State convention, my attention was called to a divisible-brood-chamber hive, invented and patented by Mr. F. Danzenbaker, of Washington, D. C. I do not know what Mr. Danzenbaker's claims are; but this

Since Langstroth was robbed, a patent court of equity has been established. This was done in 1870.

The establishment of that court enables you, my rambling brother bee-keeper, to make a much better guess as to how I shall come out when I am compelled to defend my natural rights in United States courts than could a judge on the United States supreme bench, who was not acquainted with the state of the art to which my invention belongs. The patent court of equity gives unto Caesar's things which are Caesar's. We have no dispute about the ownership of what the state of our art shows through its literature and otherwise, as was brought forward by me.

The divisible brood-chamber, with its collateral functions, was constructed especially to carry out a new system of management, neither one of which was known before the issuance of my patent. I have none, nor could I have a patent on any particular depth, length, or capacity of a frame or brood-chamber. My patent covers a divisible brood-chamber, used as and for the purposes specified in said patent. These purposes specified are the same as have been time and again written in bee-journals, my circulars, and book. There is no mistaking it, and no getting around it. In Langstroth's time, a popular method of deceiving the public was to procure a hive-patent on some minor or inconsequential feature which the claims covered, while the specifications (of which the drawings form a part) showed the essential features of father Langstroth's valuable patented invention. The uneducated public supposed it had a right to use the "patented hives," just as illustrated in the Jones, Smith, or Brown patents; but no such thing is true. They procured the right to use only what was claimed in the claims in these worthless patents, the patent office presupposing that Jones, Smith, and Brown would purchase of Mr. Langstroth the right to use his invention before they would use or sell their own. It is as though I had invented a bundle-carrier for a McCormick reaper. Before my invention is available, I must procure a right of Mr. McCormick, or sell my invention to him for what I can get for it. A patented machine or manufacture may infringe some other patent just as much as one that is not patented; remember that. Also, please remember that a patent is not property, but an attempt to give a title to property.

One writer has asked me why I don't begin prosecution against Mr. Danzenbaker. Why should I make haste? In most cases it is much cheaper and better for me to begin suit against his customers; but why make haste? Every one infringing my patent is liable, and the law gives me six years after the expiration of my patent, or until 1908, to collect royalty from all who infringe. There is no hurry; nearly all bee-keepers are fairly well informed, and it is rarely that one would make, use, or sell the Danzenbaker hive without knowing he was infringing, as certainly as Mr. Martin, the reader, and ourselves know it. It is, perhaps, a fact that we have done too little in the direction of introducing the new hive to the public.

Bee-keepers have been so writing us ever since our last issue of *The Quarterly* containing the more complete directions for properly making and using the hive, written by a thoroughly honest and unbiased friend. So far as our financial interest is concerned, which is by no means the paramount one, we have been in no hurry, knowing that time

would bring the truth uppermost, and feeling wholly secure in our patents.

There is also another phase to this subject. That strong sense of justice among bee-keepers, mentioned in your editorial, will very likely make it unnecessary for us to spend large sums of money in U. S. courts, provided the people are properly informed regarding the rights and wrongs of inventors, and it rests largely with our literature as to whether or not honey-producers shall receive such information.

JAMES HEDDON.

Dowagiac, Mich., Mar. 20.

In the meantime Mr. Danzenbaker was advised that Mr. Heddon would reply to his article then in type. In anticipation of this he directed his attorney at Washington to send in his opinion on the legal aspect of the question, to us. It was received before Mr. Heddon's article, and is reproduced herewith:

The A. I. Root Co.—Mr. F. Danzenbaker requests me to give you an opinion upon the question of infringement of the patent to James Heddon, for bee-hive, No. 327,268, issued Sept. 29, 1885, by such a hive as that shown in Mr. D.'s patent, No. 521,873, issued June 26, 1894.

A careful comparison of the hives shown in the respective patents discloses a similarity of structure only in the following respects; viz.: Each hive is composed of several (three) removable cases, containing respectively brood-frames and honey-sections, and each has a similarly made top or cover for the hive. Such similarity being found to exist, the question is presented, Has the Heddon patent any claim which, by a fair construction, can be held to cover the same, and hence be infringed by the Danzenbaker hive? In my opinion, this question must be answered in the negative.

The only claim of the Heddon patent, that even remotely touches upon the features of construction common to the two hives, is the 5th; but under no principle of construction, recognized by the courts, can his claim be held to be infringed by the Danzenbaker hive, because the latter does not contain the cleats and thumbscrews that are specified as essential elements of the combination in said claim. To infringe this claim, a hive must not only contain the thumbscrews and cleats, as the means for holding the brood-frames in position, but such screws and cleats must have substantially the location and relative position specifically defined in the claim.

The scope of this claim of Heddon, furthermore, is not only restricted by reason of its express limitations, but by the fact that the records of the Patent Office, in connection with his patent, show that he was not the originator of a hive composed of several horizontal sections, to enable the capacity of the hive to be increased or diminished according to the size of the colony. When his application for patent was pending, Mr. Heddon tried to obtain the following claim:

"In a bee-hive, a brood-chamber constructed of two or more horizontal separable and interchangeable sections."

This claim the Patent Office refused, as being to a construction that was old at the time of Heddon's invention, as shown by patents 33,668; 196,060; and 203,890, and the claim was accordingly dropped. You will see that this claim contains no such limitations as the 5th of his patent; and had he secured

the same, he could well assert the Danzenbaker hive to be an infringement. Unfortunately for Mr. Heddon, however, not being the *first* inventor of the subject-matter set out in said claim, he had to content himself with the 5th claim of the patent, with its limitations to thumbscrews and cleats, and he has no right to prevent others from making hives having a brood-chamber composed of two or more horizontal, separable, and interchangeable sections, unless they use in connection therewith the thumbscrews and cleats.

No principle of patent law is better settled than that, where an inventor in applying for a patent makes a broad claim, and drops it in view of its refusal by the Patent Office, and in its stead takes a narrow claim, having limitations to a construction not specified in the rejected claim, he can not be permitted to repudiate the limitations of his narrow claim, so as to make one an infringer who does not use what is specified in the claim, but uses only what was set forth in the claim originally made and dropped because of its rejection by the Patent Office. This is Heddon's position exactly.

In view of the foregoing, it is my opinion that, upon neither *legal* nor *moral* grounds can Heddon properly claim that he is entitled to stop the manufacture and sale of the Danzenbaker hive.

Washington, D. C.

C. J. WILLIAMSON.

The 5th claim of Mr. Heddon's patent, referred to above, reads as follows:

In a bee-hive, a brood-chamber consisting of a series of reversible and interchangeable cases, each of said cases being provided with thumb-screws extending through one side, and with cleats at the corners of the other side and facing said thumb-screws, and of a number of reversible frames rigidly secured therein between said thumbscrews and cleats, and a stand and cover, substantially as and for the purpose set forth.

I have already sent for the copies of patents stated by Williamson to cover the divisible-brood-chamber idea; but at this date they have not arrived.

I desire to take no side in this matter, any more than to give each party a fair and impartial hearing.



EIGHT extra pages as usual.

THE two-pound vs. one-pound section question is very nicely answered by W. H. Putnam, in his paper in the Madison convention report in this issue.

Do not forget that now is the time to distribute the little pamphlet on bees and fruit, among neighbors who are disposed to call the bees a nuisance.

THE editor of *Review*, while admitting that the cutting-down of the labor item by the use of labor-saving hives helps to make a success of the business, says that, "if the flowers fail to yield nectar, all the short cuts in the world will not save us." Quite right, Bro. H.

WHEN a writer condemns a thing he has never tried, and speaks from his own standpoint, and not from that of another, and judges from his own climate, and not from that of another, his criticism is weak, to say the least.

THE February *Apiculturist* comes to hand with a smiling face and a cordial good will to all its sister-cotemporaries. It is largely, as are the preceding numbers, made up of editorial matter written in Mr. Alley's characteristic style.

THE editor of the *Review* agrees with me in thinking that Mr. Boardman is one of the keenest, brightest, and most intelligent bee-keepers we have. He is a man who writes but little, but thinks much. He has followed the bee-journals closely; and now that we have succeeded in getting him to write a few articles for *GLEANINGS*, I shall expect something unusually good from his pen. In this issue his articles are begun again.

CARDS are beginning to come in thick and fast, showing that there is a strong desire on the part of our readers for the continuance of the discussion, large vs. small hives. We have received only one request to have it dropped. So, unless the straws, or "sawlogs," point differently, we will keep up the question a while longer. It is a very important subject, and each bee-keeper should settle it in the light of the discussion brought out for his locality. Upon its right solution hinges largely the bread-and-butter side of bee-keeping.

A SUBSCRIBER writes that he likes our way of tiering up hives in the cellar for wintering, but he wants to know how to get rid of rats and mice. Our plan is none other than that used and recommended by H. R. Boardman; namely, piling bottomless hives, with cover sealed down, one on top of two others, so as to leave a large open space at the bottom. If the cellar is not mouse-proof, and can not be made so, use "rough on rats" or some other poison, nicely concealed in one or two kinds of food, as described by a correspondent recently. If there are only mice, the nicest way is to use common traps.

PERCOLATOR SYRUP A SAFE WINTER FOOD.

WE fed our bees last fall in two different ways. The majority of them were fed by the percolator plan, and the rest with syrup made in the old-fashioned way— $\frac{2}{3}$ sugar and $\frac{1}{3}$ water, by the use of heat. Although the former were fed with very much less labor, and with far less danger from robbers, and with no heat or mousing of pans or cans, they wintered just exactly as well. You see, the percolator syrup is made half sugar and half water. The bees receive it in a condition about as thin as nectar from natural sources. They ripen it thoroughly, and of course it is the best feed

they can have. I shall expect that, in a series of years, comparative tests will show that such feed is far preferable—that is, that thin syrup is much better than thick feed, either early or late.

THE HIGGINSVILLE AND GABLE COVER MIXED.

IT appears that some of the correspondents of our exchanges, in criticising the Higginsville gable cover and the ventilated gable cover, have got the two mixed. It is perfectly evident that they have not studied carefully the engravings and descriptive matter of each cover; otherwise they would not make such blunders in their criticisms. The ventilated cover is intended primarily for the South, and all climates where the sun pours down hot. It is not a cover that I would personally use, as I prefer a single-thickness cover, flat on the under side; but as all people can not be made to think alike, and as climates vary greatly from each other, manufacturers try to make covers that will suit all classes and conditions. Why one should condemn one style and praise another, I can not understand. One might as well condemn climate.

DO BEES TRANSPORT EGGS?

CONSIDERABLE speculation is now being indulged in as to whether bees ever transport eggs in their hive. Most authorities in this country seem to agree that they do. So far as I am concerned I know that they do, for I have seen them carry eggs—not once, but a number of times, and I do not understand why our good friends the Germans have not seen a similar thing. Mr. Hasty, in commenting in the *Review* on the fact of my having witnessed the transportation of the egg, says I "neglected to follow on and see whether the egg was used for lunch or queen-rearing, or what." This is true; but I was not then particularly interested in the point, because I assumed that the mere fact that they carried them at all was evidence that they intended to use them in some queen-cell. This they may have done, but I feel tolerably sure that bees do at times use them for "lunch," for I have repeatedly noticed, as have others, that, when I have put a frame of eggs into a colony, for the purpose of obtaining queen-cells, two or three days afterward a large portion of the eggs would have disappeared.

HASTY ON GLEANINGS.

THE following very kind notice is from one of our old correspondents—Mr. E. E. Hasty:

Let me see; what kind of paint did I put on GLEANINGS the last time she was in dry dock? Whatever coating got put on for some of the promising writers seems to have peeled off since. I was going to name John Smith as a "peel-offer;" but Jake, after sleeping in his bunk for many months, has been on deck quite recently. But if there is a little peeling off occasionally, GLEANINGS is the same nice ship—same assortment of captains and

pilots, and same boa's'n. And she rides the waves of the hard-times cyclones a little easier than any other craft. No other seems to be saying, "Eight pages extra this time." The editorial work in the line of travel notes and interviews keeps well up, if not expanding a little in space. Friend Norman seems to be the new "middy," with more frequent hearings from friends France and Dayton. Portrait-publishing, which had declined a little, is being revived. The opening number of the year has two excellent portraits; and the persons are people of general interest whose pictures have not been trotted around much if at all. They are John T. Calvert, of the A. I. Root Co., and N. E. France, of E. France & Son. And putting footnotes of the GLEANINGS variety on the Straws gives an added vivacity to the first page of late.

Coming from such a source, it is highly appreciated, and we tender friend Hasty our sincere "thank you."

WINTER LOSSES.

OUR wintering loss up to the 20th of March was only 2 per cent, out of a total number of over 200 colonies. Three of the colonies were made up of a number of small queen-rearing nuclei, united late in the season. Such made-up stocks are liable to succumb any way, so we always take our chances on them. The other colony was one of those handsome five-banders.

Winter losses among careful and expert bee-keepers this winter will be comparatively light; but among the slovenly and slipshod it will be heavy. It seems to be a fact that cold winters (that is, continuously cold), where the bee-keepers are of the class first mentioned, are favorable. The bees do very little brood-rearing, and the spring usually comes on quick, and opens up warm and balmy. As I have often remarked, it is not as difficult to winter bees as it is to *spring* them. Well, then, if the winter suddenly turns into good warm spring, as we *hope* it will do this spring, and as it generally does do after such a cold winter, this spring will be comparatively easy on the bees. There! I am afraid I am counting the chickens before they are hatched.

NON-SWARMING DEVICES AND FIVE-BANDERS.

EXPERIMENTER TAYLOR, in the *Review*, in referring to non-swarming devices, says, "One can hardly avoid the suspicion that the Langdon device and the Conser hive depend for their success upon principles which the bees are by no means uniformly careful to observe." From all I know regarding these non-swarmers, I think Mr. Taylor is about right. Further on, referring to the five-banded bees and his experience with them, he says:

Though called "golden Italians," I should have pronounced them any thing but Italians, judging from the disposition they exhibited. While they are not the most irascible of bees, they are yet very nervous, and quick to manifest a recognition of intrusion, from which characteristics I should have

judged them to be largely of Syrian blood. But the most noted characteristic exhibited by at least one of the two colonies was an inclination to rob. If there was any attack to be attempted on a colony, or any chance to pry into a case of honey, about one-half the would-be thieves out of a large apiary were from one or both of these colonies. It is to be hoped that this peculiarity may stand them in stead in the gathering of nectar when an opportunity occurs.

I can personally vouch for the truth of Mr. Taylor's statements; for while I was in his apiary last summer they exhibited several of the characteristics he has pointed out.

THOSE GIANT BEES OF INDIA.

PERHAPS our readers will remember seeing in our columns an advertisement of "Giant Bees." We accepted the card for two insertions, and in the mean time wrote to the advertiser, asking him to send samples of the bees, as it is not our custom to accept an advertisement of a novelty unless we know what it is. We received no response to our first request, and finally wrote again, and still the request was ignored. We dropped the advertisement, and finally the following card came to hand:

I have been led into the Giant-Bee business through my ignorance, and am out \$14 cash. I should like to have you discontinue my advertisement. I have received a good many letters and postal cards asking for descriptions, samples, etc., but no orders or money. If I receive any it will be returned at once. I have answered none of them yet, and am very much ashamed of having been mixed up in this matter.

C. D. HOLT.

Murray, Ky., March 12.

Inasmuch as Mr. Holt claims, in the *American Bee Journal*, that the drones of the "Giant" bees will fertilize queens in confinement—yes, several of them—even in a queen-cage, it is evident he could not be fully informed in regard to the habits of bees or of the experiments that have been made in the past. We should not have inserted his advertisement in the first place; and it is due to our readers and Mr. Holt's patrons that his card should be published.

I do not mean to give the impression that Mr. Holt intended to be dishonest; but it is a little singular that he refused to send samples of the bees or reply to those who wrote. If he really has the bees, and inasmuch as he has advertised them, it seems to us he ought to be willing to send at least the editors of bee-journals dead specimens, even if it is difficult for him to get live ones at this time of the year. The \$14 that he refers to is probably the total cost of advertising in all the bee-journals.

WAX ADULTERATIONS. AND SIMPLE METHODS FOR DETECTING THE SAME.

SINCE our last issue we have been carrying on quite a series of experiments, taking wax of known purity, wax adulterated with paraffine,

and wax mixed with ceresin, and carefully noting the results in each case.

I procured a lot of test-tubes, such as are used by chemists, and told the foreman of our foundation department to put a small quantity of each of the samples into each tube. These, together with a thermometer, were to be placed in a bath of water, the temperature of the water to be gradually raised, when he was to be careful to observe the melting-point of the contents of each tube. The different tubes were numbered, and the results are shown in the following table:

No. 1, white wax, commenced melting at 156° F.; entirely liquid at 160.

No. 2, half wax and half ceresin; commenced melting at 160; entirely liquid at 166.

No. 3, red wax, probably Southern; commenced melting at 152; entirely liquid at 158.

No. 4, recently bought wax, commenced melting at 153; entirely liquid at 159.

No. 5, ceresin only, commenced melting at 163; entirely liquid at 172.

No. 6, half wax and half paraffine; commenced melting at 140; entirely liquid at 148.

I will explain that No. 3, the red wax, is a product from the South or from Cuba, the real color of which is a brownish red, and at first it appears to be suspicious; but, as I shall show later on, it is probably all right. Nos. 1, 3, and 4 are probably pure wax. The slight difference in the melting-points is due to the amount of dirt, or whether the wax had been recently remelted often or not.

Now, then, referring to the table you will see that the pure wax begins to melt at from 152 to 156, and becomes a perfect liquid at from 158 to 160. You will observe that No. 6 (wax that we adulterated ourselves) half paraffine and half wax, commenced to melt at 140, and became liquid at 148. No. 2, half wax and half ceresin, commenced to melt at 160, and became liquid at 166. No. 5, pure ceresin, began to melt at 163, and became liquid at 172. We therefore observe that the melting-point of ceresin is much higher than that of wax, and that paraffine is correspondingly lower. No. 6, half paraffine and half wax, shows the melting-point just where we should expect it. No. 2, half wax and half ceresin, shows figures that are half way between the pure wax and pure ceresin. You see, therefore, that something can be told by the melting-point of doubtful pieces of wax. I wish to remark right here, however, that the text-books put the fusing-point of wax anywhere from 145 to 150. This, doubtless, applies to wax as it comes from the hives, and which has not been rendered previously. It is observable that, the more wax is melted over, the higher the fusing-point, and the tougher it becomes.

Now, then, I want to give you a simpler and easier test, and one that may be, I think, fairly reliable. In our last issue we quoted from

Cheshire, giving the alcohol test. But he seems to assume that it is valuable only for the detection of *grease*; but we find that it will apply not only to grease, but to *wax* and *paraffine* as well. We procured a large Mason jar—one holding two quarts; and in the bottom were put several pieces of wax of known purity. Water was poured in, to a point say half full. Of course, the wax would all rise to the top. Alcohol was then added until the wax had settled to the bottom; then we took a piece of No. 6, half paraffine and half wax, and found that it floated readily; also a piece of No. 2, half wax and half ceresin, did the same. Pure paraffine and pure ceresin seemed to be more buoyant on the surface of the liquids, as a matter of course. Later on we took a sample of wax containing 10 per cent only of ceresin. It hovered nearer the top of the liquid, but did not seem inclined to come entirely into the "bad company" of the pure ceresin and pure paraffine, and the mixtures, 50 per cent of each.

The alcohol (or specific-gravity) test is not entirely reliable, but sufficiently so to put the wax-buyer on his guard, and cause him to have a chemical analysis made. I think there is no question but that the mixtures of half ceresin and half paraffine can be readily detected by the above test; and it is to be assumed that, if adulteration is practiced at all, the mixers will put in at least 50 per cent of the cheaper article, and that, likely, would be either ceresin or paraffine.

These experiments were performed in my presence by our Mr. Kindy, foreman of the wax-working department, and Mr. Karl Rudolph Mathey, who, I found, is quite an expert in the wax business. He tells us that the Germans make ceresin foundation, two-thirds ceresin and one-third wax—that is, they sell it for what it is; but from what experiments we have made, I am rather of the opinion that the bees will not work this article nearly as well as they will pure wax; indeed, we find it impossible to roll foundation from *pure* ceresin. It is too hard and brittle, and is lacking in that ductile quality so necessary in hive-work, and would not, I imagine, be very suitable in the hive, even when mixed with pure wax.

The ordinary paraffine of commerce has a beautiful milky whiteness, and, as explained, it has a lower specific gravity than pure wax. It is more ductile, and has a lower melting-point. Ceresin, in color, may be milky white, or so nearly resembling the color of wax, as to deceive the most expert, from its mere appearance.

We are now buying our supply of wax through a New York inspector, who has made this business of sifting the adulterated from the pure almost a life-study. To give you an idea of how the fakirs are trying to palm their adulterated goods off on the unsuspecting, let me give you an instance. Out of 23 sacks of wax that were inspected by him, only 17 were ac-

cepted, and were subsequently shipped on to us. I can hardly think that any of the foundation-makers have been deceived. The adulteration of wax has seemed to spring up within a year; and I trust that the simple tests above given will assist our co-workers or others to "spot" the spurious at once.

ROOT BROTHERS' HOME REPAIRING OUTFIT.

LET me explain, to begin with, that the Root brothers are no relation to A. I. Root. That is, they are no relation without going away back. Their celebrated repairing outfit was first worked up by George A. and C. F. Root, in the middle of the year 1890; and I remember of being greatly pleased to see the unique engraving of the cast-iron lasts, clinch-nails, etc., when they first put it out upon the world. You now can readily understand how vexed I felt when I saw unscrupulous imitators come out and copy even their advertisement before the idea had been out in print much more than a year. One of the first men to copy their idea entire, without so much as saying "by your leave," was one John H. Grant, of Chicago. I have had in mind, for a year or two past, holding these imitators up to public gaze; but I finally decided that the man who would appropriate ideas would, sooner or later, take other things, and so I let him alone, thinking it was not really my affair, any way; but the paragraph which I give below, from the *Rural New-Yorker* of March 9, seems to open the way to give Mr. Grant a little free advertising. Read it, and then give the gentleman a wide berth.

There may be a less satisfactory business man in this country than John H. Grant, of Chicago; but if there is, the *R. N.-Y.* has yet to find him. We contracted with him recently to furnish a kit of tools for our subscribers, at a certain fixed price. When we sent him the orders, he shipped about one-half the tools promised; and when we complained, he assured us that we had made a mistake—that he had two sets of tools, and that he had given us prices on the small kit. His story seemed plausible, and we accused ourselves of a blunder, and told him to send the rest of the tools at our expense. We also ordered the large kit sent to 27 more persons. This he promised in writing to do at once, six weeks ago, and sent us a bill for the same. We then supposed that he had sent them; but finding that the tools were not delivered, we kept writing to find out why. He now has the impudence to write that the orders are not filled, and that they will not be until we comply with unreasonable demands, which he now mentions for the first time. Fortunately, we are able to get the tools elsewhere, and we have sent the orders to another factory, where they will be filled promptly, and where we will get our future supply. This explanation seems due to the subscribers who have been so long and patiently waiting for the tools which they should have received weeks ago. All the orders will now be forwarded at our expense to those who received only a part of the set. The full set will also go promptly to those who have received none.



SACALINE—THE NEW AND WONDERFUL FORAGE-PLANT.

I find that much interest seems to be centering in this new plant. I have already seen it growing at the Florida Experiment Station, at Lake City. While it does certainly promise a good deal, the statements we find in the seed-catalogs are, without question, greatly exaggerated. As an illustration, the following is copied from a circular, with cut:

Is perfectly hardy, even in Siberia—Flourishes in the Indies.
Requires no plowing before planting.
Needs no cultivation, no manuring, no replanting.
Roots penetrate deep into the soil.
Once planted, stands for ever.
Endures severest drought with impunity.
Grows in poorest soils. Luxuriates in wet lands.
Thrives where no other forage plant will grow.
Young shoots and leaves eaten as a vegetable.
Stems and leaves, green or dry, greatly relished by cattle,
sheep, and horses.
More nutritious than clover or lucerne.
Gives three and four cuttings per year.
Produces 90 to 180 tons of green forage per acre.
Grows 14 feet high by June.
Excellent soil-enricher. Planted at any time.
Affords shade to cattle in summer.
Protection against storms in winter.
Floods will not destroy it. Fire will not kill it.
Cattle can not trample it out.
Seed has been sold at \$10.00 per pound.
Indorsed by the highest authorities.

stock is limited. Some who have tested it claim that their stock will not eat it. This may be because they have been too well fed. It may be, also, that they have not learned how, or have not acquired a taste for it. The wild cattle in Florida will not even eat corn meal or bran, without "learning the trade;" and a cow that is dying with starvation would die all the same if ears of corn were all around her. Under very favorable circumstances, the plant may grow from 12 to 14 feet high, and so will a good variety of field corn down on the rich corn-bottom land of Missouri—at least, it comes pretty near that. The claims, however, of "90 to 180 tons of green forage per acre," I should say, are away off—that is, if we are to understand by the above that this enormous product will be eaten by "cattle, sheep, and horses."

You will notice the plant is said to be hardy from Siberia to the Indies. Well, when I saw it in Florida, toward the first week in March, the growth of last year was all killed down to the ground—killed, I suppose, by the frost; but new shoots had started up, some of them a foot away from the original plant. These shoots were from 3 to 6 inches in height. By permission I picked some of them, and felt certain by the taste that all kinds of stock will eat it—at least, in this stage—and I also think it likely it might be cooked like asparagus. As to whether one would want to eat it unless he was very hungry, will have to be tested by experiment.



SACALINE (*Polygonum Sachalinense*) THE NEW FORAGE AND HONEY PLANT.

It will, without doubt, grow from 6 to 10 feet high in a season, on any tolerable soil, when well started; and I believe cows and horses will eat it to some extent when it is young and tender, especially after they learn how. In this respect it is something like sweet clover. It takes a year or two, if I am correct, for it to get firmly rooted. After that it makes this tremendous and extraordinary growth. We can furnish the seed in five-cent packets, but

Last, but not least, there are reports floating around that sacaline is a great honey-plant. I can not find out any thing very definite in regard to it. There do not seem to be any "posies" in the picture, but perhaps the plant had not got quite tall enough to bear honey when the photograph was taken.

We will give further reports in regard to it as soon as we get hold of any thing really authentic.

ELECTROPOISE, OXYDONOR, ETC.

THE "BLIND LEADING THE BLIND."

Beware of false prophets, which come to you in sheep's clothing, but inwardly they are ravening wolves. Ye shall know them by their fruits. Do men gather grapes of thorns, or figs of thistles?—MATT. 7; 15, 16.

Electropoise has been imitated. Just think of it! Somebody, excited by the idea of getting \$25.00 for what costs about as many cents, has copied *Electropoise!* The new machine is advertised, with the names of twelve ministers of the gospel to back it—at least, they have got "Rev." before their names. The thing is more cheeky than even Electropoise itself. It also claims there are many imitations. It will not only cure people, but it will make *plants* grow. The picture of it is so exactly like that of the Electropoise that you can hardly tell one from the other. Price \$25; or you can rent it for \$3 a week. They admit there is nothing inside of the little metal case except sulphur and carbon. I really do not understand why people can not copy it and make one themselves. But the manufacturers say it is "combined in certain delicately adjusted proportions." Here is a sample of their reasoning, to show how this machine takes oxygen from the air and transfers it to the body:

We take from page 8 of Oxydonor circular:

HOW DOES IT CURE?

Electricians have known for years that any body connected with the earth by means of a conductor, like a wire, soon becomes "negative."

A square and positive untruth in the outset. Nothing whatever passes along the wire under the circumstances mentioned.

The earth attracts the positive fluid from the body; and as all bodies have both positive and negative electricity in them, when one is withdrawn the other remains.

Another untruth.

We now know that difference of temperature lies at the bottom of this transfer. Hence, if the little plate of the "Oxydonor" be attached to the ankle, and the metal cylinder—or "vooor"—be placed in a temperature colder than the body (as in ice, cold water, or air), the positive fluid leaves the body and goes to the colder substance, thus leaving the body "negative." So much is plain.

Exceedingly plain, Mr. Oxydonor; by supporting the human body, or any other body, on a stool with glass legs, or insulating them in any way, this insulated body may be made either positive or negative, by means of a suitable electrical machine. But the idea that human bodies, or any thing else, becomes positive or negative when standing on the ground uninsulated, is a simple absurdity, even if it is quoted over and over again by venders of quack medicines.

Now, we are surrounded by the air, four-fifths of which is free oxygen gas, and—

Now, I do not know whether this is a sort of typographical blunder, or whether it is part and parcel of their other *awful* missstatements. We have given them the benefit of the former. Common air is about one-fifth oxygen and four-fifths nitrogen. See under "air" in Webster's dictionary. But let us now take the last half of the sentence.

—oxygen gas has a strong affinity for the negative state.

One begins to be puzzled a little as to what they mean by a "negative state." If they mean electrically negative, then it is another stupid falsehood. Oxygen has no more attraction for a body negatively electrified than a horse has for a snapping-turtle. One statement would be just about as sensible as the other.

Therefore, because you are connected with a colder substance, because that colder substance draws the positive fluid from you, thus leaving you "negative," because the air is touching your body at all points, because the oxygen of the air is free, and has an affinity for the negative state—you absorb the oxygen in the skin and tissues. The colder the substance with which you are connected, the more rapid the transfer of positive fluid, the stronger your negative condition, and the more intense the absorption and action of the oxygen.

This last scientific (?) explanation of the way in which Oxydonor works is just like what I have quoted above. There is just as much science to it as there is in the ravings of a maniac.

Now, if any of you think A. I. Root is making a mistake, and that he is doing injustice to an honest invention, find an educated man, if you can, who can make any sense of the above quotation. A good man may pass counterfeit money by mistake, not knowing that it is counterfeit; but the man or men who *made* the counterfeit money did not make a mistake. And the men who make Electropoise and Oxydonor did not make a mistake. They *knew* they were humbugging the people by lies; and the men who put up this little metal case, filled with sulphur and graphite, know that it has no virtue, exactly in the same way that the counterfeiter who is at work with his counterfeiting-tools knows the money he is making is not genuine and honest. Quite a few who use the machine are now admitting that it is not electricity, but they claim these people have discovered some new and heretofore unknown force or agency for the cure of the disease. My friends, if a new force in nature had been discovered, the whole scientific world from the Atlantic to the Pacific would be in an uproar about it. It would be of a thousand times more importance than a new planet, comet, or any thing of the kind. But the truth is, scientific men and scientific journals know nothing of any such discovery, for no such discovery has been made, in fact; and yet we have a case where a schoolteacher is taking the thing into a school and teaching the pupils that it is a scientific instrument! Again, they are making an excuse for charging \$25 for a thing that costs only from 40 to 50 cts., by saying that it is customary nowadays. Everybody who is charging more for a book than it is really worth, or for some secret in agriculture, or for some cure for disease, seems to have got hold of the following story. I will give it briefly in substance:

A big factory was standing still because they could not make the engine work. They telegraphed for a man, and with two taps of his hammer he made it all right, and took the next train back to his city home. His bill was \$25.25. When asked to explain, he said the 25 cts. was for doing the work, and the \$25 was for knowing how.* Now, a great many people are repeating this, and thinking it is the honest truth. I want to say that I have never met with such a case in all my experience, nor any thing like it. We get experts from the large cities, to teach us how to do any thing we want done, or to make plans for us, etc. They charge us for only their time and traveling expenses; and we seldom pay a man more than three or four dollars a day.

While in Orlando recently, a subscriber of GLEANINGS told me that his pastor's wife had recently purchased an Electropoise, and, like

* Quite a compliment the above story pays to the ability and skill of the engineer placed in charge of the engine belonging to a great factory. I rather think our engineer would smile somewhat to see a city chap—one of the know-how sort—doing things after that fashion.

all the rest, she thought it was doing wonders in the way of improving her health. My friend heard of it, and gave his minister, who is a Congregationalist, a copy of our journal. He read it carefully, and what do you think the verdict was? Why, he spoke out square and honest, as any educated minister of the gospel must speak. Said he, "Why, Mr. Root is right about it—unquestionably right. There is no possibility of his being mistaken." It is this way: Sense and reason stand back of even *personal experience*. Two and two make four—always have made four, and always will. Now, somebody might as well say that two and two make five, and that they know it by personal experience, as to say these things cure disease. We need a shaking up, all of us. If sense and reason can not be made to come up—peremptorily, we had better go straight to an insane-asylum—the whole lot of us.

OUR HOMES.

As I sit down and think of the two pleasant months I passed away down in those Florida homes, not only pleasant memories, associations, and recollections come up, but there comes also a feeling that God *called* me to go down there, and that it was his purpose to teach me some valuable lessons. I am going to try to tell you one of them. During all of those two months I was an *invited guest* in somebody's home. Sometimes the invitation came about in a strange way—I might almost say in a mysterious way. You know—

God moves in a mysterious way
His wonders to perform.

Well, I was, as I told you, an invited guest almost every day and every hour. It was quite an abrupt change from many business cares to a life of ease, and of being ministered *unto* instead of ministering to others. Here at home, with my many responsibilities and more or less things constantly going wrong, which I must set right, it is not very strange that I get into a way of—well, we will say of remonstrating when people are thoughtless; and I am afraid sometimes that I am not just as kind and courteous to imperfect humanity as you might judge by my talks and teachings. I hardly need tell you that, when one goes "visiting," and accepts an invitation, he is, at least for the time being, on his "good behavior." He is not to complain, no matter what unpleasant things come up. Why, the man or woman would be a churl indeed who would scold and find fault while a guest in the home of somebody else. Let me make haste to tell you, however, that I did not, during all my trip, find any thing to scold and find fault about. Some accidents happened. It was unexpectedly cold in Florida, and they were not prepared for it, and I had to take my share of putting up with every thing as we found it. But I did not find any thing to complain of nor to feel cross about. You may be surprised when I tell you that I really can *not* remember of having spoken an unchristianlike word during that whole trip; and I can almost say that I did not have an unchristianlike feeling. It surprises me when I think of it. Is it really possible that *A. I. Root* passed *two whole months* of his life without being what you might really call wicked, or having a wicked or unchristianlike thought? There must be some explanation for this. There is an explanation. When the time came for me to leave for home I did not really want to go. Perhaps I felt something as Jonah did when he was com-

manded to go down to Nineveh. I was not called, however, to go down to Nineveh to *preach*, and I did not do any preaching, unless, indeed, I did something that might be called preaching on that one particular Sunday I told you about. One great secret of this wonderful change and transformation was that I asked God for grace in the very outset. I felt afraid that I should, by my abrupt or restless disposition, hurt somebody's feelings. Therefore, when I started out I prayed earnestly for grace to do my work *well*, whatever work it should be. It does not seem to me that I did very much work after all of *any* kind. In fact, in one sense it does not seem to me that my visit amounted to any thing—that is, so far as doing any particular good is concerned. In another sense it amounted to something wonderful, for I met kind friends, a host of good, bright, intelligent, earnest men and women, who "loved righteousness and hated iniquity;" and I felt again and again, as I bade them good-by, "Why, I would not have missed knowing these good people for any thing in the world." They taught me great lessons, and, I presume, without thinking how much good they had done me. I verily believe that the thought of that Florida visit will make my heart bound until the last day of my life. I love our nation of people better than I have ever loved them before; and I love God more for having given me these pleasant glimpses of *other people's* "homes."

Circumstances and events seem to have strangely crowded me, or pushed me, as it were, into the very inner lives of many people. One of the pleasantest calls I made was where I visited a bee-keeper away off in the wilderness, expecting to call just one brief hour. I was taken sick, and it was not thought best for me to ride back through the woods, in the cold. You see, it was during the February freeze. I did not get any better, and I was obliged to stay several days. Sickness and suffering finally obliged them to take me into the very inner circle of their little home in the woods. As the man and wife were, however, professing Christians, we did not have a very *hard* time in getting along together. One of the days was the Sabbath; and as I was really too sick to sit up much I leaned back in an easy-chair and we exchanged religious experiences, read from the Bible, and sang Gospel Hymns. Again and again my thoughts go back to this brother and his good wife; to that little home with its bees and chickens and garden, and the dainty little spring beside the babbling brook under the palm-trees but a little way from the house.

Dear friends, do you not remember how often we see inscriptions, not always in the cemetery, where they commence, "Sacred to the memory of _____?" and then follows the name of some dear departed one. I think it must be God's Holy Spirit that has been suggesting to me that we need not wait until our friends are dead and gone before we erect a little shrine in our hearts, "Sacred to the memory of _____," somebody who is yet full of life; and I have taken great joy and pleasure in thus erecting a host of little shrines stowed away in the little corners of my heart, "sacred to the memory of" the Florida homes I have visited. I might think these friends did not enjoy my visits as I enjoyed them, were it not for the postal cards and letters that keep coming now—reminiscences, as it were*. Then I fall to wondering if, in my

*Here is a brief extract from one of the postals:
We all feel the better for your coming; and all join in sending you our best wishes. Come again, please. Surely "goodness and mercy" have "followed" you these many years. All the bee-world will say amen.

awkward way, I may not have given some good brother or sister pain by my carelessness. If so, I wish to assure such that I did not mean it, or did not intend it.

Just a little more about that lesson God wanted to teach me. Several times I met people with whom we had had little differences. Sometimes it was some one whom our people had refused to send goods to because they did not know all about them. In one case a veteran bee-friend, and one of the shining lights in bee culture, moved from Iowa away off down to Florida, and did not tell us he had done so—that is, when he made an order for something, just in the way he was in the habit of doing away back in Iowa, he forgot to tell us he was the same man, down in Florida. Had the clerks come to me with the order, I should have known our old friend at once, even if he was down in Florida; but in this case he not only overlooked our blunder, but he hailed Constance and myself as we were on the way to a hotel, and gave, as an excuse for so doing, that their weekly paper had already announced in plain print that we were staying *at his home*. When I looked astonished at such a procedure he good-naturedly replied, "Why, Mr. Root, didn't you know that obituaries are often written before people are really dead?"

When the letters of invitation came, asking us to go to certain points, I did not always know any thing about the people; but the fact that they wanted me to make them a visit was sufficient; and I never inquired, and scarcely ever thought about, what particular church these people belonged to, or whether they belonged to *any* church at all. The result was, I visited people of various denominations, and was taken right into the homes of people who represented almost all kinds of belief. Sometimes I laughingly suggested, when the family Bible was handed to me, that perhaps I was not used to conducting worship in their way. The reply was, invariably, "Brother Root, we will worship God this time in *your way*."

The matter of giving thanks at the table, I found, is also conducted in quite a variety of ways. Sometimes I did not readily "catch on," but I really believe that one of my pleasantest experiences was in having some good brother or sister, in a most kind and friendly way, explain to me their ways, or the forms in use by their particular denomination. Are you surprised that I began slowly to have a *broader* charity than I had ever had before? One very pleasant visit was with a brother who did not profess *any* religion. He told me at the outset that we had better not discuss theology, because we would only *get mad*.

"Oh! no, dear brother, we shall not get mad—I most assuredly shall not."

"Oh! yes, you will get mad if I tell you the plain truth. If you do not, you will be the first *Christian* I ever met who did not. They get mad, every last one of them, when people of my class come right out and take the liberty of believing what we choose, and telling the truth in plain English."

Then he told me of some of the things he had said to *ministers*, and the reply that the minister gave. Now, I am really afraid that, before I made this visit, I should have said the minister did *about right*. But I think *now* he made a mistake. You see, I was an invited guest; and, besides, I had given a sacred promise—at least it was sacred to me—not to get mad. My friend with whom I was riding said some severe and cutting things about our faith; and, oh I am so glad that I replied gently and mildly. This friend recommended books and writers who speak disrespectfully of the Bible and of the Christian religion. Of course, I could not agree with him here.

Well, the next day as we were riding away off through the great pine forests we called at a humble home where there was quite a flock of children, and not very much for them to read. My companion said he had brought along a bundle of papers for the family, and in some way I got it in my head that he would naturally bring them something that might teach disrespect to Christianity; and if so, I felt like making a protest. How do you suppose it turned out? Why, dear friends, that bundle of papers I had been looking at suspiciously turned out to be some old worn copies of—what do you think? *Gleanings in Bee Culture!* I asked God to forgive me for my uncharitable thoughts; and when I reminded my good brother that the Home Papers in those back numbers would teach the children *Christianity*, he looked up with a laugh, and said he believed he would rather risk the children with *such* teaching than any thing else he knew of, even if a good deal of it was fallacy and superstition. O dear friends, I am *sure* there is something wrong in having such *wide differences* between God's people and those who do not see things as we do.

At another home I found they belonged to a sect who worship God on the last day of the week, instead of the first. But my heart had been considerably mellowed by this time. I assured the brother who came for me Saturday night, that, had I known of his religious convictions, I should have greatly enjoyed worshiping with *him* on *his* Sabbath instead of *mine*. Then I should have been obliged to have two Sundays, some of you may suggest. Not necessarily. He lived away back in the woods; and while I was his guest I could have done as he did, without any violence to my honest convictions.

The great Father, it would seem, had still another experience in store for me. I was obliged to hire a livery, to be taken five or six miles to the home of one who had given me an invitation. The liveryman said I would find "my man" at a camp-meeting of Spiritualists, for he was one of the leaders. I found him just a little before the meeting opened. In fact, there were other bee-keepers present also with their families. Would I care to attend one of their meetings? Yes, I told them I should be glad to. Dear brother or sister, if you should feel like criticizing my course, let me say that the earnest follower of Christ Jesus can go anywhere unharmed if he holds fast to the strong arm of Him who once said to the winds and the waves, "Peace, be still." The speaker's stand was spanned by a beautiful arch on which was the text, "Peace on earth, good will toward men." The hymns that were sung were such as we generally use in our places of worship. The music was most beautiful. A bright young daughter of my friend played the violin, and another bee-keeper's daughter played the guitar. In a little time it was announced that the address would be made by a speaker who would speak on any subject that any one of the audience might suggest. I was called upon to furnish the subject. After asking the Holy Spirit to guide me, I wrote on a piece of paper, "Thou hast loved righteousness and hated iniquity." Two other subjects were given the speaker, and I believe that, in his address, he included all three; but in order to reach the train I expected to take, I was obliged to leave the tent before the discussion was ended.

I have found it a pleasure to do business with your firm, as goods are always carefully packed and promptly sent.

W.M. N. STOUT.

Portland, Ind., Feb. 25.



FLORIDA FOR HEALTH.

Before I go any further, I think I must answer a few questions in this line. When I left home, I was suffering from a severe cold that had settled into a kind of bronchial trouble, that has followed me more or less winters ever since I was away up in Portland, Ore. After being in Florida three or four weeks, this entirely disappeared. My appetite greatly improved, and I was particularly impressed with the fact that I could sleep better than I had been able to for years. I used frequently to ask the privilege of going to bed when it was only eight o'clock in the evening, and I often slept soundly until the sun was up and shining in my face next morning. This is a new departure for A. I. Root. During the last four weeks I was in Florida, as a consequence of this, I learned to omit entirely my naps in the middle of the day. Since I have been home I have been feeling more vigor and strength of mind and body than for years past, unless, indeed, it was when riding the wheel. I can not ride my wheel now here in Medina, for the roads are too muddy.

Well, you will find people all over the State of Florida who went down there to live because they could not live anywhere else; and quite a few say they came without any expectation of living many months *anywhere*. I do not know whether it is the beautiful climate, or whether it is spending so much time sitting in a rocking-chair on the veranda, or whether it is the general fashion of taking things easy, that makes people get well and strong in Florida; but I have been told many times that careful statistics show the death-rate according to population to be less than in any other State in the Union; and this, too, right in the face of the fact that the State is the general rendezvous for invalids from all over the world. If this is true, it is something really remarkable. By the way, I want to say, too, that I did not once feel a bit of my old nervous prostration. I got around lively every day, as I do anywhere else, and enjoyed lots of energy, strength, and enthusiasm during the whole time. I was told several times that nobody ever has grip down there—at least, in the southern part of Florida: catarrh is also almost unknown. Some eight or ten years ago a young lady worked in our office, who was quite deaf. She finally went to live with a brother at Sorrento, Fla. Most of you remember Nellie Adams, who used to advertise queens from that point. When I met her I expected I should have to shout to make her hear; but as I noticed she heard every word of the most commonplace conversation, I said, "Why, look here, Nellie, how does it come that you are hearing every thing we talk about? What great doctor brought about this cure?" She replied in substance that she had reason to believe it came about from living in Florida. When she was here in Ohio, she was troubled with catarrh, which became so bad that it affected both her hearing and speech. She noticed her trouble began to improve almost as soon as she arrived at her Southern home, and it finally disappeared entirely. Since then she has been North, and stayed a whole year at a time, but she hears perfectly.

Now, friends, before spending very much money with doctors or medicines I would try at least a few weeks in Florida; and by all means try Florida rather than Electropoise, or

anything else of that ilk. If you have not very much money, you can rent some sort of domicile very cheaply, and you can get along down there as economically—that is, if you are so inclined—as in almost any place in the world. A great part of the year you do not really need any house at all, except for the looks of the thing; and if you do not care to put on much style, food and clothing may be had for a very small sum, comparatively.

It occurs to me that I may have put the matter of health pretty strongly in the above, and perhaps it may be no more than fair to say that a great part of Florida is occupied by people who have taken up homesteads. They have 160 acres of land, but they really make use of not more than five or ten acres—that is, a great many of them do this way, and every homesteader is anxious to have neighbors. He would sell five or ten acres very cheap—sometimes he would give it away in order to have somebody move in and start a settlement. There are lots of towns—that is, they are towns on the map—in Florida where there are not any houses at all. At Gifford Station, for instance, which is to be seen on the map, there are no houses, not any station, nor even a platform—no, not even a crossroad. There is a sort of road that runs parallel to the railroad, and the town is supposed to be somewhere on this parallel road. Well, you see people are very anxious to have towns built up, because that would advance their property. They are interested everywhere in having people move in, and, as a natural consequence, they are all the while studying up the advantages of their locality. This is good, and I am glad of it; but it has a tendency to make everybody honestly think that *this* locality is an *exceedingly* healthy one. I was led to believe there might be some honest bias in their opinions, because so many will say, "Oh, yes! over at so and so it is *sickly*." They have malaria and fevers;" and at some other place they will tell you that there are mosquitoes, fleas, etc., so that a body can hardly live; "but where we live you don't have any troubles of this kind. See how well I am. There ain't anybody sick anywhere in this neighborhood." I did find people sick, however, in some places, but it was mostly rheumatism. Even Florida does not seem to be proof against some kinds of this dread disease.

DEATH OF MR. HENRY NEIGHBOUR, SENIOR
MEMBER OF THE FIRM OF GEORGE
NEIGHBOUR & SONS.

The above announcement comes in the *British Bee Journal* for Feb. 28—another reminder that the veterans in our industry are passing away. For more than a quarter of a century the name of George Neighbour & Sons has been almost a household word in apiculture; and notwithstanding the criticisms that dealers in apicultural implements are pretty sure to get now and then, I can not remember that I have ever heard a reflection cast on the business methods of the above-named firm. Their dealings, and their whole lives, in fact, seem to have been characterized by a sort of manly integrity and gentlemanly bearing that it would be well for us to imitate on this side of the great water as well as the other. Perhaps it would be well to mention that one of the standard works on apiculture in England comes from this same firm.

A. I. R.

Still in the Lead!

Hilton's Chaff Hives, White Polished Sections, T Supers, Foundation, Smokers, and every thing needed in the apiary. Send for 1895 catalog.

GEO. E. HILTON, = = Fremont, Mich.

Best on Earth.



Mention GLEANINGS, and send for circular of prices.

T. F. BINGHAM, Abronia, Mich.

DON'T MONKEY NOW.

Send for our 36-page catalog free.

Root Co.'s Supplies kept in stock.

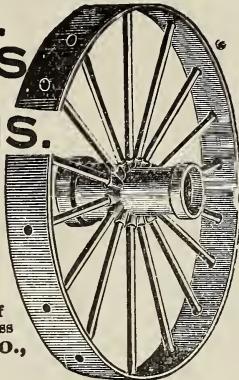
We can save you freight. Let us know what you need for the apiary. Get our prices.

JNO. NEBEL & SON, High Hill, Mo.

**METAL WHEELS
for your
WAGONS.**

Any size you want, 20 to 56 in. high. Tires 1 to 8 in. wide—hubs to fit any axle. Saves Cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Catalog free. Address

EMPIRE MFG. CO.,
Quincy, Ill.



500 Barrels Sweet-Potato Seed.

Yellow Jersey, best variety, \$3.00 per barrel. Red Spanish, Red Bermuda, and Jersey Queen, \$4.00 per barrel; 5% discount on 5-barrel lots. Our stock is fine. Order now and secure a supply at reasonable prices. L. H. MAHAN, 3-tei, Box 143, Terre Haute, Ind.

**SOUTHERN AND EASTERN AGENCY
FOR A. I. ROOT'S BEE - KEEPERS' SUPPLIES
AT A. I. ROOT'S PRICES.**

RAWLINGS IMPLEMENT CO.,

Formerly Balto. Farm Implement Co.

Jobbers & Dealers in Farm Implements & Machinery

209 S. Charles St., Baltimore, Md.
23-9eot

STRAWBERRY AND RASPBERRY PLANTS. Best New and Old varieties. Best grown Plants. Catalog Free. With instructions for their culture. Send for it Now. Mention this paper. Address P. O. Box 213. E. J. SCOFIELD, Hanover, Wis.

USE THE **COMMON-SENSE BERRY-CRATES and BASKETS.**

None cheaper. For circular address **etff H. H. AULTFATHER, MINERVA, O.**

Sweetheart.

A Regular Sugar Lump.

LEADS **ALL WATER-MELONS ON THE MARKET.** Early, Large, Handsome, Good Shipper, Best Quality. Send for circular giving important facts to growers and shippers, with comparative sales and opinions of many commission men in leading northern markets.

Seed, Packet, 10 cts.; lb., \$1.50.

ALBERT WITTEMAYER,
Originator, Grower, and Shipper,
Emison, Knox Co., Ind.

CHOICE SWEET-POTATO SEED

Yellow Jersey (the best), Red Bermuda, and Yellow Nansemond, at \$2.50 for 11-peck barrels, till sold out.

4-8 L. H. REDD, De Soto, Illinois.

The New Craig Seedling Potato.

For full description of this Potato, see page 959 of this journal for Dec. 15, 1894. Prices: 1 lb. by mail, postpaid, 25 cts.; $\frac{1}{2}$ peck, by freight or express, \$1.00; peck, \$1.75; $\frac{1}{2}$ bushel, \$3.00; bushel, \$5.00; barrel of 11 pecks, \$12.50. The above prices will hold good as long as our stock lasts. All orders by mail will be filled as soon as received. Orders by express will be shipped at once unless ordered otherwise. All orders for potatoes by freight will be filled April 1, or soon after that time, unless directions are given to ship at an earlier date. In this latter case I do not assume responsibility for loss in freezing; but where it is desirable to ship earlier, and customers have bad luck, I expect to help them out so far as I can consistently. In regard to my responsibility I would refer you to A. I. Root. In fact, where it is more convenient you can order potatoes of the A. I. Root Co., instead of sending your orders to me.

GEO. E. CRAIG, Zimmer, Franklin Co., O.

Every Farmer

Ought to read the **Rural New-Worker.**

(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. ONLY \$1 A YEAR. Send for sample copy to

THE RURAL NEW-YORKER, New York.

We have made arrangements so that we can send it and GLEANINGS for \$1.75 a year.

Please mention this paper.

Control Your Swarms, Requeen, Etc.



Sell 25¢ for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatch- ing and Introducing Cage, also best Bee-Escape, with circular explanations. Twelve Cell-protectors, 60¢; 100, \$3. 12 cages, \$1; 100, \$5, by mail. Circular, free. Address N. D. WEST, Mid- dleburgh, Scho. Co., N. Y.

Sold also by all the leading supply-dealers.